# TEXAS State Journal of Medicine

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1114 West Daggett, Fort Worth 1

Subscriptions: $3 per year for members; $6 for nonmembers; $7 for foreign.
Single copy: 75 cents.



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VOLUME 57 NUMBER 12 DECEMBER, 1961


## A Singular Opportunity

Texas physicians and personnel of hospitals in the state have a unique and important opportunity beginning Jan. 1, 1962, when the State of Texas begins its program of medical care for needy aged patients through implementation of Kerr-Mills legislation. (See page 1000.)

This opportunity arises out of the plan which the State Department of Public Welfare is to use in the administration of funds set aside for health care of these aged persons. The Department will purchase insurance for each recipient of old age assistance in the state from Blue Cross of Texas. This type of administration for such health funds has not been used in any state heretofore. There seems little doubt, therefore, that if the plan works well in Texas, similar plans will be adopted in other states. The use of these funds to purchase pre-paid health insurance offers the best approach yet proposed.

Every physician will want to make a special effort to see that this fine plan really works, since this is a workable alternative to medical care of the aged through the social security system.

Good judgment must be used to see that there is no over utilization of the hospitals. Also, charges should be made in keeping with the economic status of these patients, who must meet the strict eligibility requirement to qualify for old age assistance benefits. Generally, the allowances for services of physicians and surgeons, as specified by the insurance coverages, will be accepted as full coverage for these services. Not only should this be true, but physicians should use their influence with hospital administrators to suggest that they accept the coverages allowed as full payment.

Over utilization, charging beyond the coverage allowables, and harassment of the patient or relatives for additional moneys by either the physician or the hospital could cause the program to fail. Great care should be taken to see that these conditions do not prevail.

Every effort should be made to see that the new program succeeds, and every physician should take a personal interest in it. An opportunity of this kind might not come again.

—R. H. BELL, M.D., Palestine,
Councilor, District 11.

# Symposium on Steroid Hormones

A Symposium on Steroid Hormones appears in this month's *Journal*. These articles are from the Departments of Endocrinology and of Biochemistry of the Southwest Foundation for Research and Education, San Antonio.

The symposium concerns certain aspects of endocrinology, particularly the steroids and their origin, synthesis, transport, significance, and use.

All areas of medical practice present diseases in which steroid hormones are important. Most endocrine disturbances have repercussions on steroid secretion or metabolism. Even in diseases of non-endocrine origin the pharmacologic use of steroids in therapy has been widespread. We know that an excess of adrenocorticoids can delay wound healing, hamper the formation of granulation tissue, and interfere with the inflammatory reaction. That they modify antigen-antibody operation may indicate a rationale for their pharmacologic effectiveness in allergic inflammatory and collagen diseases; in metabolic diseases as gout and childhood nephrosis; in intestinal lesions of ulcerative colitis and regional enteritis; in fibrogranulomas such as Boeck's sarcoid and pulmonary granulomatosis; in certain diseases of the hematopoietic system; in many eye diseases; in skin diseases; and even in infectious diseases presenting overwhelming toxicity (of anaphylactic origin).

Although we have learned much, we must learn much more about the role of steroids in cardiovascular disease, the relationship between stress and aging, and the chemistry of hormones and hormone-like substances. Physicians now have accepted Hans Selye's general adaptation syndrome and the principle of "conditioning", the realization that the same hormone may produce fundamentally different effects under various conditioning circumstances. They have also accepted Fuller Albright's teachings, "that pneumonia, a broken leg and a bad burn involve important changes in adrenal cortical function", and that "one cannot possibly practice good medicine and not understand the fundamentals underlying therapy".

Despite our knowledge of therapeutic results of the steroids, we still need to unravel their mechanisms of action. Close association of clinicians, pathologists, physiologists, and chemists in research promises faster elucidation.

As we add to our knowledge we realize that no single discipline, no single path produces the fundamentals. All disease processes ultimately must be understood as metabolic disturbances, with methods of morphology, chemistry, and physics being utilized. Influential fashion too often exalts first one discipline then another with concurrent degradation of another. We must strive for a multidisciplinary approach to the solution of medical problems.

The authors of the Symposium on Steroid Hormones have attempted to discuss truth and knowledge from whatever source and discipline they can tap for gain. The authors illustrate the intrasystemic capability of the endocrine glands to elaborate steroids at various anatomic sites. We portray the endocrine glands as the mainstay of the delicately balanced regulatory and integrative mechanism that activates

This research of the Southwest Foundation for Research and Education could not have been possible without the contributions of Mr. Gilbert Lang, Mrs. Preston G. Northrup, members of The Argyle, the many friends of the Foundation, and the various grants from the National Institutes of Health, Public Health Service.

multiple physiologic agencies for homeostasis. Considered, too, are controls, stimulators, and other regulatory mechanisms in the self-government of a human body. The understanding clinician can, in many instances, exert intelligent control by prescribing the steroids that the patient's glands fail to balance or supply. Use of the laboratory in diagnosis and control of therapy will increase. On such a background, both diagnosis and therapy will improve continually.

—ELBERT DECOURSEY, M.D., Sc.D.,
Director of Biomedical Research,
Trinity University,
Formerly Director, Southwest Foundation for Research and Education, San Antonio.

## If I Were an M.D.

*If I were an M.D., what more could I ask?*
*Nothing more than to ease my task.*
*The rights and privileges enjoyed by others*
*To practice and work and associate as brothers.*
*No threats with the new sort of mysticism*
*Of frustration and bureaucracy called "socialism".*
*To do what is right by colleague and patient;*
*To charge what is fair; to relax on occasion.*
*These are the things I would seek.*
*With help from the Lord, this may doctors reap.*

*—Gene R. Dillard*

**CHRISTMAS GIFT**

Give the gift of good health this Christmas. Contribute to Christmas Seals and use the Seals on letters and packages.

**FIGHT TB
WITH CHRISTMAS SEALS**

# Our Christmas Wish To You

The staff of the *Journal* wishes for the doctors of Texas a joyous Christmas season, and a New Year filled with satisfaction in a challenging job well done.

If we could fill a stocking for each of you, it would overflow with goodies such as

—Ten hours of uninterrupted sleep—at least once!

—A whole month of mail free from "throw-aways" and material that you don't really want but can't throw away (present periodical excepted, of course).

—An electronic device that automatically identifies a patient's phone call, answers it with a soothing recording of your usual advice, and disturbs not your dreams.

—Daytime obstetric deliveries only—and none after noon on Friday.

—A privately owned and operated health insurance program which would pay your fee for a patient promptly without insisting that you fill in a form.

—A day when all of your non-paying patients decide, "This is the day to pay Doc's bill," and then do it.

—A month without an evening meeting.

—A few hours each week to listen to music, read a mystery, biography, or whatever book gives you pleasure, and to participate in a sport you enjoy.

—Time to teach your children a faith by which to live.

—Peace with yourself and with your fellow man.

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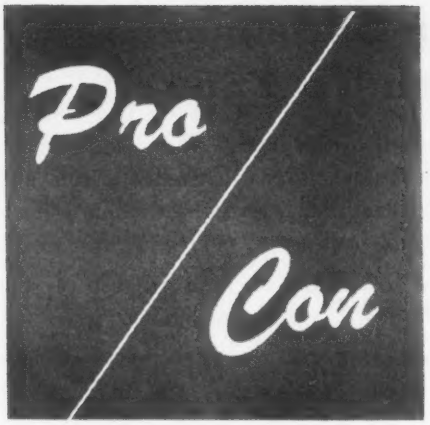
More than 200 physicians in Tarrant County volunteered 12,000 hours during the past three months at the John Peter Smith Hospital, a 220-bed charity hospital in Fort Worth.

The Tarrant County Medical Society responded when the hospital was unable to obtain enough interns for the year beginning July 1, according to an article in a recent issue of *AMA News*. A schedule of 6 and 12 hour shifts was set up with medical society members serving as interns and residents. The hospital now has four residents on the staff, but still relies on the volunteer physicians.




**Since 1939, costs of medical care have responded to inflation —but not nearly as much as those of certain other items in the budgets of American people.**

# Inflation and the Costs of Medical Care

In Washington, costs of medical care continue to be a hot political question. The next congressional session will attempt again to put medical care of the aged under Social Security.

The facts on medical care are rarely given impartially to the public. Particularly the position of doctors and hospitals is often omitted or distorted.

Medical care has responded to inflation—up 108 per cent in the 20 years from 1939 through 1959. But in that time shoes increased in price by 169 per cent, men's haircuts 218 per cent, domestic servants' wages 297 per cent, public transportation 139 per cent, food 151 per cent.

The physician's fee has risen by only 90 per cent.

Last year, Americans spent $328,900,000,000 on all items. This was apportioned: 6 per cent for medical care, 21.3 per cent for food, 13.9 per cent for household operations, 12.8 per cent for housing, 12.4 per cent for transportation, 10.3 per cent for clothing, 6.3 per cent for personal business, 5.9 per cent for recreation, 5.3 per cent for liquor and tobacco, 5.8 per cent for all other items.

Since 1940 there have been some changes in distribution of the health dollar. They are shown in the following table:

| | 1940 | 1960 |
|---|---|---|
| Hospitals | .18 | .26 |
| Physicians | .30 | .25 |
| Drugs | .21 | .20 |
| Dentists | .14 | .10 |
| Health Insurance | .05 | .08 |
| Appliances | .06 | .06 |
| All other | .06 | .05 |

Hospital costs have shown the biggest increase, mainly because of the rising wage level. Helping to offset bigger hospital bills, however, are shorter hospital stays. Example: 20 years ago an appendectomy patient would have stayed in the hospital at least 14 days. Today, the stay is four days.

The real cost of medical care—in terms of hours of work to purchase it—is less than it was 20 years ago, notes the American Medical Association. Example: To pay for physicians' services required only 55 per cent as much working time by a factory employe in 1959 as in 1939.

Part of the decrease in real costs of medical care, the AMA points out, is the higher quality of today's service. Research has produced drugs, technological instruments and improved medical techniques which yield not only economic benefits but intangible gains of infinite value—improved health and longer life spans.

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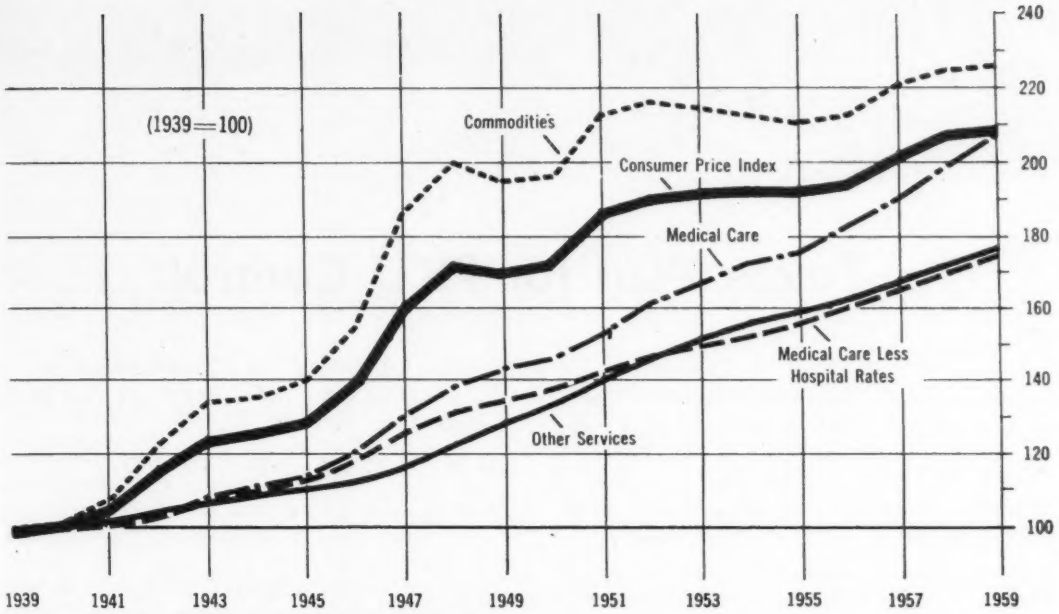



SOURCE: Economic Research Department, American Medical Association
U. S. Bureau of Labor Statistics

Trends in Consumer Price Index and selected components, 1939 to 1959. From Kemp, A., and Livingston, W. R.: Medical Care Costs in Extended Inflation, J.A.M.A. 174:131 (Oct. 29) 1960. Reprinted through courtesy of authors and publisher.

Addendum: For 1960, the indexes are as follows:

| Items | Price Index (1939=100) |
|---|---|
| Commodities | 227.7 |
| Consumer price index | 213.0 |
| Medical care | 215.2 |
| Medical care less hospitalization rates and hospitalization insurance | 178.3 |
| Other services | 182.3 |

**"In order to pass this medical care for the aged bill, we'll have to add special maternity benefits."**

## Medical Care Goal Suggested

A four-point program of responsibilities to attain the objective of the best possible medical care at the least possible cost in a manner consistent with common tradition is suggested in a recent editorial of the *New York State Journal of Medicine:* .

1. The job of planning state-wide medical care facilities must be assigned by government leaders to those who have the widest public interest as their first concern.

2. Members of the medical profession must be willing to assume more responsibility for insuring the wisest use of medical care facilities in their communities, their regions, and their state.

3. Hospital boards of trustees and administrators need to accept the basic concept that people at large have every right to expect that the hospital is an institution of public trust and that costs will be cut wherever possible without reducing quality of care.

4. The people need to learn that the way they use or misuse their hospitals will help determine the cost of health insurance premium rates.

*Pro - Con*

# Texas Plan for PKU Control

In the September issue of the *Texas State Journal of Medicine,* Dr. Harvey Renger's President's Page was devoted to the problem of phenylketonuria (PKU). Dr. Floyd Norman, Dallas, member of the Council on Medical Jurisprudence, wrote a short editorial on this subject in the same issue.

After the author consulted with Drs. Renger and Norman, a "Texas Plan" was devised for the broadest possible early screening tests for PKU. This device for detection is suggested for adoption, and it is hoped that this voluntary plan will become nationwide. A similar program has been effective for some time in Michigan.

More than 95 per cent of babies born in the United States are born in hospitals. Each baby is usually taken home and primarily cared for by his mother.

If, through the hospitals involved, the doctor requests the mother to perform urine tests on her baby at three and six weeks of age, *she will do so.* The request could be presented by the hospital to the mother of each new baby on a 4 by 5 card to which test material is applied. Although the wording may eventually require alteration, examples of the two sides of a card are illustrated below.

It would be simple to use two plastic ampules of 10 per cent ferric chloride instead of Phenistix if administrative considerations make this more advantageous.

—JOHN K. GLEN,
Houston, Texas.

MOTHER: SAVE now and USE later these PKU test papers. PKU (or Phenyl-Keton-Uria) is a metabolic disease which occurs only once out of each 20,000 births. It is, therefore, rare; but, because it could lead to mental retardation or even idiocy, you don't want your baby to be "the one." Early treatment is essential; therefore, early detection is necessary. Please cooperate with your doctor by testing your baby's urine at 3 weeks of age with one of the test papers, and at 6 weeks with the other.

INSTRUCTIONS

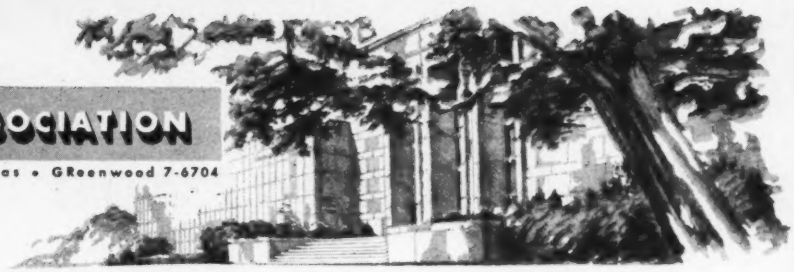
Attached below are 2 test papers. These are AMES' PHENISTIX. Each is enclosed in a separate moisture proof compartment. When the baby is 3 weeks old, remove one of the papers from its covering without opening the second compartment. Wet the paper from baby's urine on the diaper. *If* there is a definite color change to blue-gray on the paper, take it to your doctor and let him see the baby for further testing. If there is no color change, repeat the test at 6 weeks. Then if there is a color change, see your doctor. By this age, your doctor will want to examine the baby anyway.

PHENISTIX NO. 1

PHENISTIX NO. 2

Given to you at the request of your doctor by.....HOSPITAL

TEXAS MEDICAL ASSOCIATION
1801 North Lamar Boulevard • Austin, Texas • GReenwood 7-6704



# A Time To Give Thanks

Another season of thankfulness, joy, and happiness is with us at the end of 1961. Members of the Texas Medical Association have much for which to be thankful. They have an efficient working organization, capable staff personnel, and a large group of physicians dedicated to the Association's principles. In the few years in which I have observed the organization grow in prestige and efficiency, I have marveled at the many physicians who have donated their time, their moneys, and their energies to the Association's work. Throughout the years I have been thankful that there has been practically no friction (differences of opinion, yes, but no severe friction) to deter the objectives of the Association. Yes, these men have exerted their best efforts for the advancement of the medical profession, and we can be humble and grateful that they have.

Association members can also rejoice that during 1961 they have been able to practice medicine as they have in the past, undominated by governmental control. Although the greatest threat to the security of medical practice will probably begin with the New Year, I have confidence that each member will hold a constant vigil to prevent inroads of would-be socializers of the medical profession. We must continue to alert our friends so that at the end of another year, we can again be thankful for our freedom.

We can be happy that we can enjoy a season of good will and cheer based on the birth of the Greatest Physician Who ever lived. Although the Supreme Court has ruled that a belief in Him is not necessary to hold public office, let us pray that not too many will take advantage of this decree, destroying your and my Christmas season.

Merry Christmas and Happy New Year to all of you.

Harvey Renger, M.D.
President, Texas Medical Association

# I. Synthetic Progestational Steroids

## Their Significance and Use

THE SECRETION of progesterone by the corpus luteum and placenta is an integral part of the normal menstrual and gestational cycles. In many clinical disorders, therefore, the use of a progestational agent is indicated.

Progesterone is therapeutically unsatisfactory, since it is relatively ineffective by mouth and requires daily intramuscular injections to produce adequate results. However, until 1936, when the compound ethisterone (Pranone, Lutocylol) was synthesized, there was no substitute for progesterone. Ethisterone is orally active, but its potency is inadequate. With ordinary clinical dosage, the endometria of estrogen-primed castrate women become progestational in only about half of the cases. In addition, the compound is known to have some androgenic side-effects.

In recent years a major breakthrough has occurred in the chemical synthesis of progestational compounds. There are three groups of synthetic steroids currently available (Fig. 1): (1.) the testosterone derivatives, of which ethisterone is an example; (2.) the 19-norsteroids, of which norethindrone (Norlutin, Ortho-Novum) and norethynodrel (Enovid) are examples; and (3.) the derivatives of 17-hydroxyprogesterone, of which medroxyprogesterone (Provera) and 17-hydroxyprogesterone caproate (Delalutin) are examples. Synthetic changes in the steroid molecule have produced major differences in the actions and potency of the resultant compounds.

Creation of the new steroids has raised a fundamental question: What really is a progestin? To say that a synthetic progestin should be a substance which mimics the actions of progesterone seems reasonable, but it involves an inherent assumption: that is, that progesterone is the "best of all possible progestins". If this Candide-like attitude had been observed by chemists who attempted to make synthetic corticosteroids, there would not now be a large array of compounds with highly differentiated and individually useful actions. The preparation of steroids which have corticoid action but lack the salt-retaining effect, for example, of hydrocortisone (the endogenous "natural" hormone) proved the value of steroids designed for specific purposes, as contrasted to mere imitation of the natural substance. Consequently, it is desirable and imperative to evaluate synthetic progestational compounds in terms of specific potencies and actions, rather than by a vague concept of "progestationality".

### Comparison of Biologic Actions

*Human endometrial activity.*—Table 1 provides an index of the dosage required to produce a fully progestational endometrium in castrate or menopausal women. The figures, gathered from the literature and based on groups of women which are not necessarily comparable, must be regarded only as rough measures of comparison. Oral progesterone has a low order of effectiveness, whereas some of the new compounds such as medroxyprogesterone, are at least 100 times as potent. In the Department of Endocrinology, the author and his co-workers have been examining other progestational compounds which promise even higher orders of potency.[7] There is also an important *qualitative* difference in the endometrial action of these synthetic hormones. For example, 17-hydroxyprogesterone caproate will produce a normal, fully secretory endometrium when given in conjunction with adequate estrogen prim-

**Synthetic progestins are undergoing extensive development and they offer hope for better management in many menstrual and gestational disorders. Certain undesirable side effects are possible, but proper use of the synthetic agents should, for practical purposes, eliminate most of them.**

JOSEPH W. GOLDZIEHER, M.D.

ing. The oral 17-hydroxyprogesterone derivatives, such as medroxyprogesterone or the earlier progenitor, 17-hydroxyprogesterone acetate (Prodox), show a tendency to produce glycogen deposition in the endometrial glands. This is particularly noticeable in the first few days of administration, after which the usual secretory changes develop. If, for example, it turned out that endometrial glycogen had special value in a particular process such as nidation, then steroids possessing this property might have unique advantages and applications. The correlation of specific features of endometrial histology with reproductive functions, however, is still unexplored.

By contrast, the 19-norsteroids, norethindrone and norethynodrel, have extremely different action on the endometrium. For the first few days, the progestational action is similar to that seen with progesterone. After four or five days, however, there develops a pattern of glandular exhaustion or regression. Secretory changes are rare. The endometrial glands develop, at most, to a stage comparable to day 16 or 17 of the normal menstrual cycle, and then regress to a structure resembling a day 5 proliferative gland. At the same time, stromal development continues; edema and pseudodecidual changes are evident after about 12 days of treatment at 10 mg. per day. After 20 days, the stroma may resemble that of early pregnancy, while the glands show advanced regression. Intensive therapy with 19-norsteroids, as in endometriosis, has made it possible to study the extreme changes which these compounds can produce. After two months at a level of 40 mg. per day, the endometrium shows a decidual response, minimal vascular growth, and pronounced glandular hypoplasia. Later, focal decidual necrosis begins; after about six months the endometrium degenerates to a pattern of atrophic glands and sparse stroma made up of fibroblast-like cells. Such "19-nor endometria" may be peculiar enough to make an unwary pathologist suspect endometrial sarcoma, which is not the case. In fact, it is suspected that prolonged cyclic treatment with 19-norsteroids *reduces* the spontaneous incidence of uterine cancer. In all cases, the important differences in endometrial histology produced by the various types of synthetic progestins clearly point to specific applications, which will be discussed.

*Pregnancy Maintenance.*—Progestins have been used widely in the management of threatened and habitual abortion,[3] but most studies on this subject have been so poorly designed that an evaluation of the effect of the progestational agent is impossible.

**DR. ELBERT DeCOURSEY, director of biomedical research at Trinity University, San Antonio, and formerly director of the Southwest Foundation for Research and Education, San Antonio, is guest editor of this three-part Symposium on Steroid Hormones from the Foundation. Dr. J. W. Goldzieher, chairman of the Foundation's Department of Endocrinology, and Dr. Leonard R. Axelrod, chairman of the Department of Biochemistry, are participants.**

GUEST EDITOR

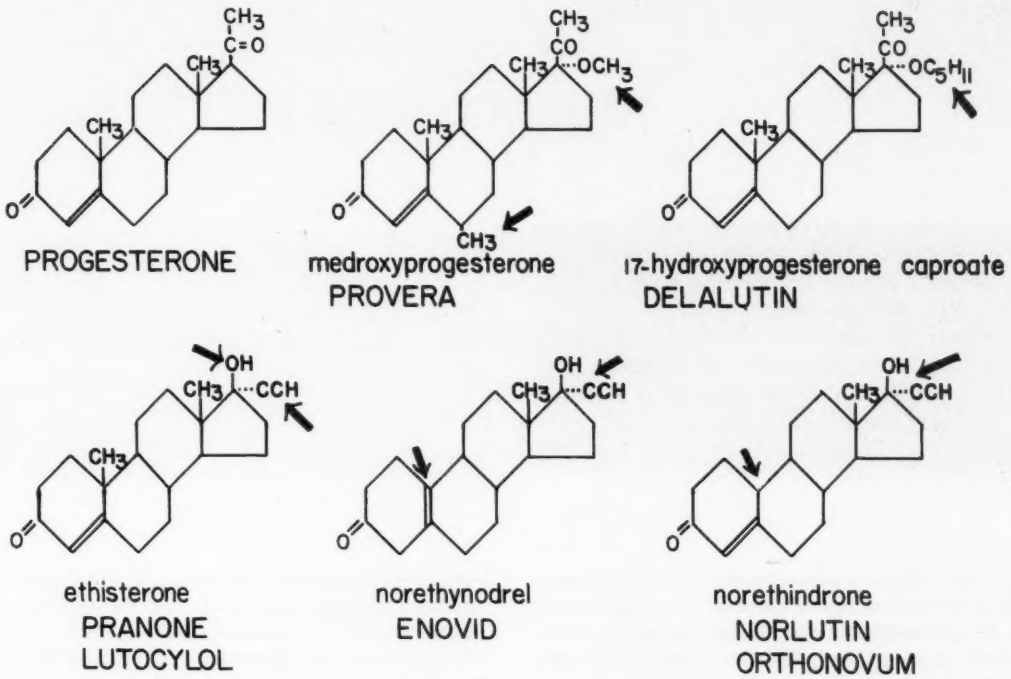



**Fig. 1.**

The data on 17-hydroxyprogesterone caproate, for example are not statistically valid, in the author's opinion.[2] To date, only certain studies with huge oral doses of progesterone (1 Gm. per day) or with medroxyprogesterone at 40 mg. per day have yielded unequivocal evidence of effectiveness.[11] Many other compounds are also being tested.

Studies of maintenance of pregnancy in animals after ovariectomy yield interesting comparisons of the potency of various progestational steroids (Table 2). Again, it must be emphasized that these are only rough comparisons and that they merely indicate ranges of activity. Apparently medroxyprogesterone is the most potent compound, which suggests that this and other 17-acetoxysteroids should be tested properly in humans. Such studies, with careful statistical controls, are being conducted in several institutions, including the Southwest Foundation for Research and Education. If the animal data of Table 2 are relevant to human therapy, there seems to be little purpose in the treatment of patients with threatened and habitual abortion with 19-norsteroids or 17-hydroxyprogesterone caproate. There is no question, however, that actual clinical trial *under statistically acceptable conditions* is necessary before a final answer is obtained.

*Gonadotropin Inhibition.*—It has been noted in animals, and subsequently demonstrated in man, that certain synthetic progestins inhibit the secretion of pituitary gonadotropin. Approximate figures for this activity are given in Table 3. It is more difficult to conduct valid studies of this type in human beings than in experimental animals. For example, it has been demonstrated that gonadotropin excretion in postmenopausal women varies significantly from day to day,[9] making it relatively difficult to obtain valid comparisons. Furthermore, it has been shown that the routine Klinefelter-type of urinary gonadotropin assay is meaningless, and that even the most sophisticated forms of gonadotropin bio-assay cannot distinguish normal female gonadotropin excretion from "low" values.[1] Hence, the technical problems in evaluating the gonadotropin-suppressant activity of progestins are formidable. Moreover, most of the studies conducted have been performed at high levels of drug administraton, and no adequate data exists at the levels usually employed in conditions other than endometriosis. Intensive interest in this area of physiology was engendered by the observations of Rock and Pincus[9] that 19-norsteroids could be used as contraceptive agents. It was originally supposed that this action was achieved by gonadotropin inhibition, but recent information suggests that this may not be the whole or even the major mechanism of action

in the human. There is evidence that certain progestational compounds have direct actions on the ovary. Studies of this phenomenon by Drs. Martinez, Maqueo, and Perez-Vega, associated with the Southwest Foundation's Department of Endocrinology, are in progress.

*Ovulation Inhibition.*—Whatever the mechanism, it has been clearly demonstrated by the pioneer studies of Pincus that 19-norsteroids are phenomenally effective as ovulation inhibitors. In the author's studies with *norethindrone* (Pincus and coworkers have used norethynodrel) a group of 210 women have been observed for a total of more than 5,000 cycles *without the occurrence of a single pregnancy.* It would appear that medroxyprogesterone, ethisterone, and 17-hydroxyprogesterone caproate do not share in this activity.

*Electrolyte Effects.*—It is well known that progesterone causes urinary excretion of sodium and chloride. None of the synthetic progestins seem to share this activity, except possibly norethindrone at the level of 40 mg. per day. Even here, however, the effect is inconstant and equivocal.

*Undesirable Effects.*—Subjective symptoms have not been a problem with the derivatives of 17-hydroxyprogesterone (medroxyprogesterone, 17-hydroxyprogesterone caproate). However, certain of the 19-norsteroids have significant side effects. In conception control studies conducted with norethynodrel in Los Angeles,[13] 33 per cent of the patients discontinued the medication within the first year because of side effects, mostly gastrointestinal. Similar though fewer problems were encountered in the Puerto Rico study of Pincus. Norethindrone does not present this problem. In the large number of patients studied in Mexico by Rice-Wray[9] and in the San Antonio series, the incidence of gastrointestinal complaints (such as nausea) has been at the placebo level. This clinically important difference is apparently not due to the progestins, but to the relative quantities of estrogen incorporated in the commercial material. Norethindrone as Norlutin or Ortho-Novum contains 0.05 mg. estrogen (3-methoxy ethinyl estradiol) for each 10 mg. of progestin; norethynodrel as Enovid contains three times as much. This estrogenic material produces side-effects similar to those of stilbestrol. This difference in the two preparations appears clinically significant. In contrast to the 33 per cent rejection rate in the Los Angeles norethynodrel study, the rejection rate in the San Antonio norethindrone study has been only 1.5 per cent, and not even this small number could be ascribed to side effects of the medication.

Potential androgenic effects of the synthetic progestational compounds have received much attention. Mild acne, and similar symptoms have been observed both with norethindrone and norethynodrel, but there are no statistically valid clinical comparisons available. Table 4 indicates the androgenic activity of various progestins measured by different biologic indices in the rat. The rat-androgenicity varies depending on the criterion used. In a recent study[12] it has been shown dramatically that different estimates of androgenic potency can be obtained for the same compound, depending on the method of assay used. Therefore, the meaning of these bio-assay evaluations in terms of clinical androgenicity is ambiguous.

Perhaps the greatest clinical concern has been the possibility of masculinization of female fetuses in mothers treated early in pregnancy with progestational compounds for threatened or habitual abortion. This question has been studied by Wilkins[15] and his co-workers, who have collected a series of cases of masculinization in children born of mothers treated with hormonal substances. Unfortunately, the statistical bias inherent in the collection of such "anecdotal" data makes it difficult, if not impossible,

TABLE 1.—*Human Endometrial Activity of Various Progestins.*

| Compound | Total Dose* (mg.) |
|---|---|
| Progesterone (oral) | 2000-3000 |
| Progesterone (i.m.) | 200 |
| Ethisterone (oral) | 500-700 |
| 17-hydroxyprogesterone caproate (i.m. x 2) | 200-500 |
| Norethindrone (oral) | 100 |
| Norethynodrel (oral) | 100 |
| Medroxyprogesterone (oral) | 25-75 |

*Dose per 10 days, to produce good secretory endometrium.

TABLE 2.—*Pregnancy Maintenance (Ovariectomized Rats).*

| Compound | Total Dose (mg.) | "Index of Activity" |
|---|---|---|
| Progesterone + estrone | 8 | 60 |
| 17-hydroxyprogesterone caproate + estrone | 50 | some |
| Medroxyprogesterone | 0.4 | 96 |
| Medroxyprogesterone | 0.15 | 40 |
| 9-bromo 11-keto progesterone | 10 | 91 |
| Ethisterone | 25 | none |
| Norethindrone | 50 | none |
| Norethynodrel | 10 | none |

TABLE 3.—*Gonadotropin Suppression by Various Progestins.*

| Compound | Humans with elev. Gon. (Dose in mg./day) Neg. at | Pos. at |
|---|---|---|
| 17-hydroxyprogesterone caproate | 500 mg./wk. | |
| Medroxyprogesterone | 200 mg./day | |
| Ethisterone | 100 mg./day | |
| Norethindrone | | 10 mg./day |
| Norethynodrel | | 10 mg./day |

TABLE 4.—*Androgenic Activity of Various Progestins.*
(Rats; total dose per 10 days, in mg.)

| Compound | Levator ani | | Seminal vesicle | | Prostate | |
|---|---|---|---|---|---|---|
| | Neg. at | Pos. at | Neg. at | Pos. at | Neg. at | Pos. at |
| Progesterone | 40 | | 100 | | | 10 |
| 17-hydroxyprogesterone caproate | 10 | | 10 | | | 1 |
| Medroxyprogesterone | | | 40 | | 40 | |
| Ethisterone | | | | 10 | | 10 |
| Norethindrone | 0.6 | | | 0.6 | | 0.6 |
| Norethynodrel | 0.6 | | | 0.2 | | 0.5 |

to interpret the results. Any conclusion of a causal relationship between hormone therapy and fetal masculinization, based on this type of information, may result in another example of the *post hoc* fallacy. There are several indications that this may be the case. No published data exists regarding the incidence of spontaneous fetal masculinization, although it is known that such cases occur at times when the "index of suspicion" of the examining physicians is sufficiently high. Several instances of clitoral hypertrophy have been observed by the author in newborn infants of mothers who received no hormone therapy. Furthermore, Wilkins has reported cases of fetal masculinization in mothers who received progesterone only.[14] Clinical levels of progesterone therapy are extremely low compared to endogenous production of this substance by the placenta. Other cases of masculinization have been reported in women who have received only stilbestrol, an estrogen which is not even a steroid. Such observations argue more for spontaneous occurrence than for any causal relationship. It therefore seems not improbable that fetal anomalies in women treated with various synthetic progestins reflect more the current therapeutic vogue than any causal relationship between the steroid and the anomaly. Many more women are being treated with 19-norsteroids and medroxyprogesterone than previously; hence, neonatal anomalies associated with such treatment are becoming increasingly common.

There are data indicating that 19-norsteroids and medroxyprogesterone are capable of producing fetal masculinization in rats. Although these observations should make the physician wary of similar complications in humans, he should await reliable data. For example, medroxyprogesterone is almost as potent as testosterone propionate in inducing fetal masculinization *in rats*.[12] By contrast, medroxyprogesterone does not remotely approach such a level of androgenicity in the clinical situation. *To date, no cases of human fetal masculinization in women treated with medroxyprogesterone have been reported,* in spite of the widespread use of this material.[5] Thus, the fears expressed by Wilkins must be regarded with reserve, and the conclusion-jumping by others[12] is to be deplored.

Gain in weight has been reported in patients treated cyclically with 19-norsteroids for a prolonged period. As yet, the quantitative aspects of this problem have not been explored, nor is it clear whether this weight gain represents protein anabolism or relatively transient electrolyte and water retention.

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## Applications

From the brief review, it is evident that the synthetic progestins have a wide spectrum of activity, and one which is likely to increase with intensive study of these compounds and the availability of new derivatives. Apparently certain progestins might be preferred in one situation and others elsewhere. In the management of habitual abortion it would appear best to administer 1 Gm. of progesterone or 40 mg. of medroxyprogesterone daily by mouth. In the management of functional uterine bleeding, several compounds appear of value. As an injectable, 17-hydroxyprogesterone caproate insures constancy of action and promotes a physiologic type of secretory endometrium. Medroxyprogesterone as an oral agent also appears favorable in this regard. The 19-norsteroids appear to have a hemostatic action; moreover, the endometrium-involuting effect may be beneficial in functionally hyperplastic or cystic endometria. True dysmenorrhea can be relieved by preventing ovulation. This has been accomplished with the administration of estrogen in cyclic fashion, but it was found that the subject eventually "escaped" from this inhibitory effect in spite of continued estrogen therapy.[4] Similarly, 19-norsteroids have a definite role in the management of dysmenorrhea, particularly since ovulation does not escape from this

type of suppression. These compounds have a unique role in the inhibition of ovulation, and hence in conception control. From the symptomatic point of view, norethindrone seems to possess significant advantages over norethynodrel. Pregnancy has occurred with astonishing promptness in fertile women who have desisted from the use of 19-norsteroids taken previously for contraceptive purposes. In the author's own studies, for example, 11 of 13 women who discontinued therapy by choice were pregnant within 90 days. On the basis of these and earlier observations, the utility of 19-norsteroids in the management of infertility is being investigated. Similar studies are being conducted with medroxyprogesterone and 17-hydroxyprogesterone caproate. Such investigations are difficult to conduct because of obvious statistical considerations, and no definite conclusions are possible at present.

The 19-norsteroids and medroxyprogesterone are being used also in the treatment of endometriosis, and early reports indicate that synthetic progestins offer much promise in this therapeutic field.[6] Isolated observations on patients with cervical or endometrial carcinoma who have received synthetic progestins have also excited considerable interest, and undoubtedly research on the subject is due for major expansion.

## Conclusions

Synthesis of a variety of progestational agents has given clinicians new and powerful therapeutic weapons. The proper use of these agents requires an understanding of their preferential and, in some instances, selective actions. The concept of a synthetic progestin merely as a convenient substitute for progesterone is untenable, and does not take advantage of the great potential of these new drugs.

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# St. Luke the Physician

"St. Luke is noted for a compassionately sensitive and moving account of the life of Christ. He records details overlooked or perhaps thought unimportant by the other three disciples in their Gospels. The very essence of the Gospel according to St. Luke is the most poetic and beautiful story ever written about a birth in a lowly manger some 2,000 years ago in Bethlehem of Judea.

"Being a physician, is it not inherent in his nature to give a detailed accounting of the most miraculous birth in the history of mankind? Luke gives us the story . . . in a pastoral tone poem unsurpassed in vividness and beauty in modern literature. Artistic in his perception, acute in his observations, his writing reflects his orientation with the art of medicine as practiced in Biblical times.

—Dr. H. Edward Dickson, J.A.M.A., March 4, 1961.

# II. Clinical Applications Of Steroid Determinations

WITH INTEREST expanding in endocrinology, measurement of steroids in urine and blood is being used, and misused, more widely. The clinician should be aware of the limitations and pitfalls as well as of the advantages of the techniques of measurement.

Technically, steroid determinations are much more exacting and laborious than most other routine clinical procedures. Technicians competent to do routine work cannot conduct these procedures without special training; consequently, results reported by hospital and commercial laboratories may be misleading. The test most frequently requested, the urinary 17-ketosteroids, depends on a measurement which must be performed with stopwatch precision to obtain results in which duplicates agree within $\pm 5$ per cent. Few other tests require this degree of exactitude. Of all the available adrenal steroid methods, the Porter-Silber determination of corticoids is the simplest and most reliable.

The choice of blood versus urine as the material to be tested depends upon various factors. A blood sample is compact and simple to obtain, but blood levels of certain hormones normally fluctuate hourly. The hormones circulate in free and in conjugated form and are bound more or less tightly to specific serum proteins. Most methods designed for the determination of steroids in blood do not include both the free and bound fractions, and none of them allow for variations in the activity and concentration of the specific binding proteins. Urine collections also present problems. A 24-hour collection of urine averages out hourly and diurnal variation. It therefore yields a better picture of the average daily output than a "momentary" measurement, as in a blood determination. However, the reliable collection of urine for 24 hours, especially under hospital conditions, is difficult. There seems to be a hospital leprechaun which appears only when 24-hour urine samples are being collected; it usually persuades a well-meaning individual to dispose of part of the collection. The 24-hour urine collection is more cumbersome than a small blood sample; it requires more technical manipulation in the laboratory; and it is less pleasant to handle. Under certain conditions, for example in the agonal state, the hepatic metabolism of circulating steroids or the renal excretion may no longer be normal, and urinary levels may not reflect the true state of endogenous secretory activity. Fortunately, such problems are rare. Except in particular research situations in which hormone production or turnover is being studied, the author believes that reliably-collected 24-hour urine samples possess significant advantages over blood determination.

Endogenous steroids may be grouped into several categories, depending in part on their physiologic significance and in part upon the available methods of measurement.

## Corticoids

The general term, *corticoids,* has the advantage of simplicity over those of "11-oxysteroids" or "17-hydroxycorticoids". It refers to the adrenal cortical

**Determinations of hormones in urine and blood can be valuable aids to the clinician, but he must have access to laboratories which produce reliable information. He must also have specific knowledge of the utility and interpretation of the tests he wishes to perform.**

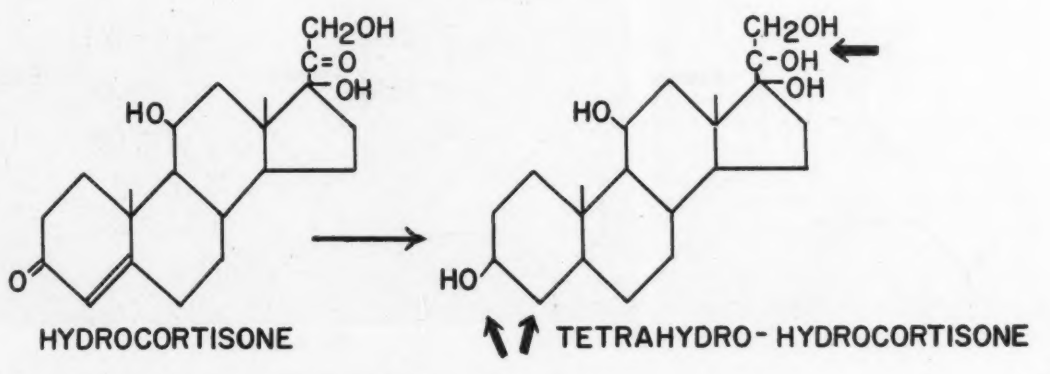
JOSEPH W. GOLDZIEHER, M.D.

secretory product and its metabolites, with the exception of those metabolites which have been broken down to 17-ketosteroids. It does not include aldosterone and its metabolites. The corticoids are largely reduction products of hydrocortisone and corticosterone (Fig. 1).

There are two popular methods for measuring these substances in urine or blood: (1.) The Porter-Silber reaction, which measures only those compounds with a dihydroxy-monoketone side chain (Fig. 2). These represent about half of the total metabolites of hydrocortisone and corticosterone. (2.) The method for measurement of the 17-ketogenic steroids which comprise the Porter-Silber corticoids and also those corticoids which have a dihydroxy or trihydroxy side chain (Fig. 3).

The Porter-Silber technique is simple and precise, but the 17-ketogenic technique measures a much larger fraction—almost all—of the corticoids, and in this respect has a theoretical advantage. Nevertheless, the Porter-Silber and the 17-ketogenic methods of determination are essentially identical in terms of clinical interpretation. Moreover, the final step of the 17-ketogenic steroid determination involves the same exacting, stopwatch procedure required for determination of the 17-ketosteroids, a serious disadvantage in the opinion of the author and his coworkers. Another complication is that the 17-ketogenic measurement also includes an abnormal steroid, pregnanetriol, which has a singular significance. If the clinician is not aware of this fact, he can misinterpret the report of a high value.

Fig. 1.



The level of corticoids in urine or blood is an index of adrenal cortical hormone production (except for aldosterone) during a specific period. Determinations of the functional capacity of the adrenal cortex are conducted by adrenocorticotrophic hormone (ACTH) tests to measure the response of the adrenal cortex to stimulation, and by suppression tests with prednisolone or dexamethasone to determine the suppressibility of the adrenal cortex for differentiation of hyperplasia versus tumor. In all of these situations the determination of corticoids is the index of response. The use of 17-ketosteroid determinations in such functional tests is not satisfactory except under special circumstances, because the response of the adrenal cortex in terms of 17-ketosteroid excretion is more erratic than the response in terms of corticosteroid excretion.

In the differential diagnosis of adrenal cortical hyperfunction, in which it is necessary to distinguish Cushing's syndrome attributable to hyperplasia from that caused by neoplasm, a routine devised by Liddle[1] is valuable. After measurement of baseline corticoid excretion, the subject is treated with 2 mg. of dexamethasone daily in divided doses for two days, and at the level of 8 mg. daily for two additional days. Urinary corticoid determinations are performed at the end of each two-day period. In Cushing's syndrome caused by hyperplasia, the corticoids do not change appreciably at the 2 mg. treatment level, but decrease substantially at the 8 mg. level. In contrast, tumors do not respond with diminished excretion even at the 8 mg. level.

In measuring the degree of adrenal responsiveness, as in obscure cases of adrenal insufficiency, stimulation tests with ACTH are used. Discussion of the advantages and disadvantages of the various techniques advocated for ACTH tests would be lengthy, but each laboratory must determine its own range of response, with the reservation that corticoid determinations must be used. Older methods which depended on changes in the blood eosinophil count have been discarded because of their unreliability.

## 17-Ketosteroids

This group of compounds originates from the removal of the sidechain of a precursor steroid such as progesterone or hydrocortisone (Fig. 4). The testis, ovary, and adrenal glands produce 17-ketosteroids. The "total 17-ketosteroid" determination (of which there are infinite minor variations) therefore measures a complex of substances of different origins. In the evaluation of adrenal function in the female, the 17-ketosteroid determinations have value only in the differential diagnosis of masculinizing states, hirsutism, and similar problems. For quantitative evaluation of adrenal function in the female, as mentioned previously, corticoid determinations are preferable. In the male, comparison of simultaneous levels of corticoid and 17-ketosteroid excretion under certain circumstances may give insight into the production of testicular steroids. Since the excretion of ketosteroids varies more in the male (as a result of the testicular increment) than in the female, each laboratory must work out not only its normal range, but its normal range *for each age group*.

Subdivision of the total 17-ketosteroids into fractions or individual components is valuable under particular circumstances. Several years ago, 17-ketosteroids were divided into the α and β constituents, with the latter allegedly representing adrenal 17-ketosteroids. The basis for this distinction was that dehydroisoandrosterone, an adrenal 17-ketosteroid, was of the β-type. However, there are many cases involving adrenal hyperfunction in which dehydroisoandrosterone is not the steroid which is primarily affected; hence, this determination fails to yield the proper information. Recent progress in steroid methodology has been directed toward development of

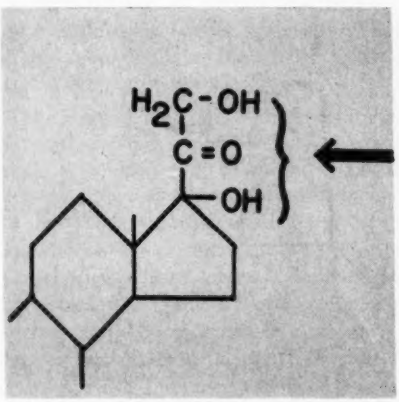



Fig. 2.

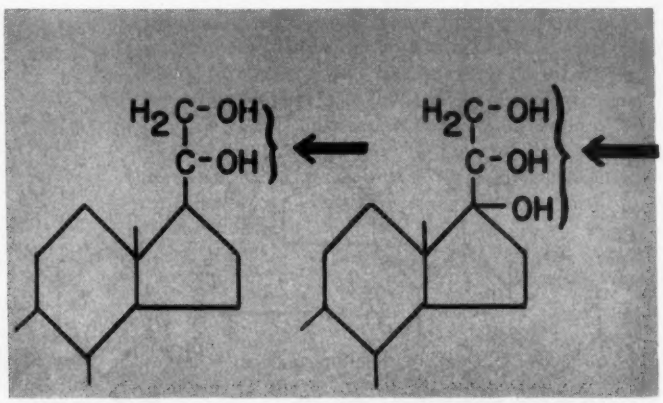



Fig. 3.

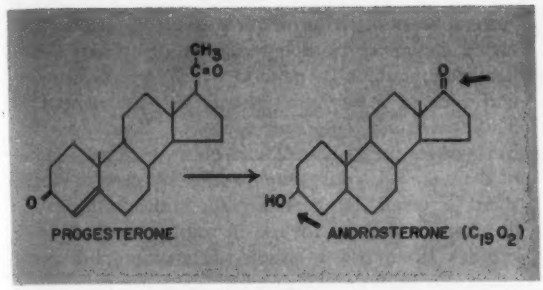



Fig. 4.

techniques which distinguish two groups of compounds referred to as "$C_{19}O_2$" and "$C_{19}O_3$". This distinction is important. The 17-ketosteroids containing 3 oxygens (therefore, $C_{19}O_3$) are metabolites of hydrocortisone (Fig. 5), and hence should be considered in the same terms as urinary corticoids. For example, elevation of 17-ketosteroids would be attributed to an increase in the $C_{19}O_3$ fraction in a case of Cushing's syndrome, but to the $C_{19}O_2$ fraction in case of adrenogenital syndrome, Stein-Leventhal syndrome, or masculinizing ovarian tumor. The $C_{19}O_2$ group represents an important steroid fraction. There are three major compounds in this class—androsterone, etiocholanolone, and dehydroisoandrosterone. The latter compound is largely of adrenal origin, has moderately strong androgenic qualities, and can be measured in the laboratory by applying the "Allen blue" or a similar reaction to the urinary extract prepared for the standard 17-ketosteroid determination. Androsterone and etiocholanolone are mirror images and differ only in the orientation of one hydrogen atom on carbon 5. This small variation, however, makes a large difference in biologic properties since androsterone is a potent androgen whereas etiocholanolone is inert. Both compounds are made by the adrenal gland; more accurately, the gland makes a 17-ketosteroid which is metabolized by the body to androsterone and etiocholanolone. Testosterone, produced by the testis, is also metabolized to androsterone and etiocholanolone, and if testosterone is produced by the ovary under unusual circumstances, such as hilus cell tumors or certain types of polycystic ovary, it is metabolized similarly.

There is an interesting clinical correlation to these observations. Adrenal steroids which eventually appear as androsterone and etiocholanolone are only moderately androgenic. Hence, if virilization occurs as a result of some abnormality of the adrenal, it is usually accompanied by relatively high levels of total 17-ketosteroid excretion since much low-potency androgen is required to produce the clinical changes. If androgenic manifestations arise from ovarian production of testosterone, only a small rise in total 17-ketosteroids may be seen because testosterone is a more potent androgen; only a small output is required for profound clinical repercussions. In a case of pronounced masculinization, for example, the *absence* of elevated $C_{19}O_3$ and dehydroisoandrosterone excretion, and minimal elevation of total 17-ketosteroids strongly suggest ovarian origin of the androgens. In this fashion, total and differential measurement of the 17-ketosteroids may be of great diagnostic value.

There are also unusual situations in which fractionation of the 17-ketosteroids is essential for diagnosis. For instance, a disease known as "etio fever" has been reported. In this condition, which is related to congenital adrenal hyperplasia, the adrenal releases tremendous quantities of etiocholanolone. This compound is strongly pyrogenic and accounts for many of the clinical symptoms. Without identification and measurement of this specific steroid, definitive diagnosis would be virtually impossible.

From the practical view, determination of total 17-ketosteroids and dehydroisoandrosterone should be possible in most responsible, large hospital laboratories. Fractionation procedures are being simplified rapidly and should be available soon at the routine clinical level. Identification of individual steroids such as androsterone and etiocholanolone is accomplished by paper or column chromatography, procedures which are not readily adapted to a routine laboratory.

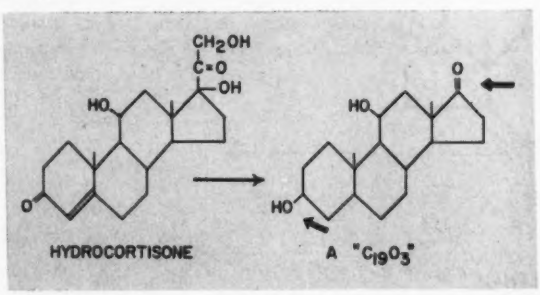



Fig. 5.

## Aldosterone

If the technical problems involved in the determination of urinary corticoids and 17-ketosteroids are not to be considered lightly, obstacles in the determination of aldosterone are formidable. In contrast to ketosteroids, which are excreted in the range of milligrams per day, aldosterone excretion is only 1,000th as much, that is, in the range of micrograms per day. Determinations of aldosterone are research procedures, involving either complex bio-assay schemes, or extensive chromatography assisted by

various techniques involving labeling with isotopes such as $C^{14}$ or tritium. Interpretation of urinary aldosterone levels is further complicated by their dependence on the sodium balance of the body.

### Pregnanetriol

This is a compound of extraordinary interest, arising as it does from the metabolism of 17-hydroxyprogesterone, which is synthesized by the adrenal gland. In the process of synthesizing hydrocortisone from its precursors (Fig. 6), 17-hydroxyprogesterone occurs as an intermediate step. Even under normal circumstances, some of this 17-hydroxyprogesterone escapes from the adrenal, and is metabolized to pregnanetriol. The normal range of excretion in the adult is a milligram or less per day. In certain congenital diseases of the adrenal, such as pseudohermaphroditism or congenital adrenal hyperplasia, abnormalities of the adrenal enzymes prevent the normal synthesis of hydrocortisone. The 17-hydroxyprogesterone accumulates and is metabolized in substantial quantities to pregnanetriol; this substance, in turn, appears in the urine. Pregnanetriol may be detected indirectly by determination of urinary "17-ketogenic steroids" a method which detects urinary corticoids of many varieties and also pregnanetriol. This may cause temporary confusion, hence specific methods for pregnanetriol have been developed. Some of these are relatively simple and, since exact quantitation is often not necessary for clinical diagnosis, they can be adapted for use in routine work. In the author's laboratory, a simple chromatographic procedure has been developed which measures pregnanetriol and pregnanediol relatively easily.

### Pregnanetriolone

This recently-identified steroid has an interesting diagnostic potential. As far as is known, this substance appears in the urine only in cases of adrenal hyperplasia associated with certain adrenal enzyme abnormalities, but it has not been found with adrenal tumors. If future research proves this correct, pregnanetriolone determinations may be valuable in the differentiation of tumor and hyperplasia in adrenal

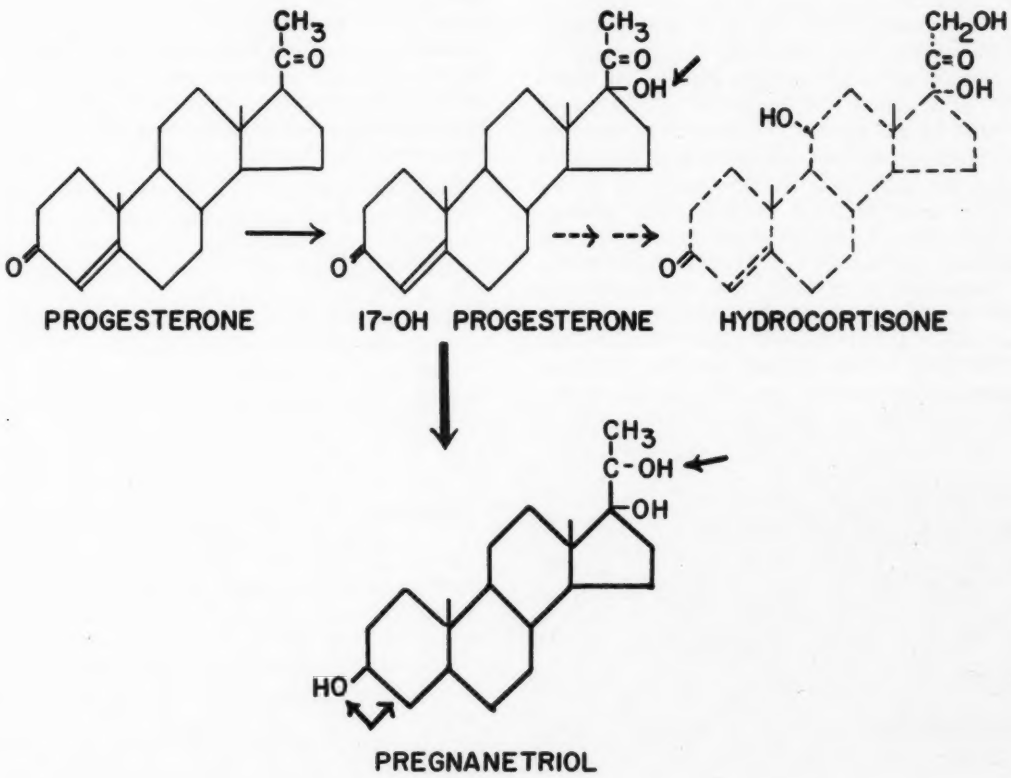



Fig. 6.

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disease. Although the technique is relatively difficult now, it may be simplified soon. Since it would be necessary only to prove the presence or total absence of this compound, the difficulties inherent in quantitative measurement would be avoided and relatively simple qualitative tests could be developed.

## Pregnanediol

This compound, the major metabolite of progesterone, has been studied and measured for many years. The original methods were difficult and relatively crude, and steroids such as pregnanetriol interfered. Many new methods have been developed and some of the recent ones are adaptable for routine clinical use. While the earlier methods were adequate when dealing with the high urinary excretion of pregnanediol seen in pregnancy, they did not suffice for studying menstrual abnormalities or problems of threatened and habitual abortion. In these situations, it is often necessary to distinguish between the low, basal excretion of pregnanediol by the adrenal (less than 1 mg. per day) and the pathologically low increment of pregnanediol excretion in the case of corpus luteum or placental failure. Urinary pregnanediol excretion is of prognostic value in threatened and habitual abortion and in other disorders of early pregnancy. There is no satisfactory substitute for measuring progesterone production when endometrial biopsies cannot be obtained. The volume of technical and research literature on this substance promises further simplification of measurement methods in the future.

## Estrogens

The large number of situations in which urinary estrogen determination would be useful is self evident. Unfortunately, excretion of estrogens falls within the same range as the excretion of aldosterone, namely, micrograms per day (except during pregnancy). Thus, the technical difficulties are again formidable. Procedures such as those of Bauld or Brown,[2] performed by highly skilled research workers, have provided much useful information. However, these methods are technically difficult and are wholly outside the range of routine laboratory use. In the male, there is no adequate substitute for urinary estrogen determination, but in the female the vaginal smear (prepared by the Papanicolaou or, preferably, by the Shorr technique) is an extremely simple and useful procedure which readily determines major levels of estrogen production. Estrogen deficiency is more satisfactorily diagnosed by the vaginal smear than by urinary estrogen determinations. It is only in situations where quantitative estrogen excretion, variation in excretion, or the nature of the actual estrogen excreted is under question that the Brown or Bauld techniques have no substitute in the female. Occasionally, local factors, such as vaginal infection, interfere with interpretation of the vaginal smear.

## Summary

Hormone determinations in urine and blood are of much clinical value. It is necessary, however, to have access to laboratories which produce reliable information, and which have determined adequately the normal range for their particular techniques. Further, the clinician needs to have specific knowledge of the utility and interpretation of these tests to obtain maximal value from them.

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# III. Steroid-Producing Endocrine Organs

## Their Common Origins and Metabolic Activities

ALTHOUGH THE steroid-hormone-producing organs (adrenal, ovary, and testis) do not constitute a coherent anatomical system with obvious structural connections, they have by history, medical practice, and academic study been joined irrevocably. These small organs, which collectively weigh less than 90 Gm. in the adult and which regulate the homeostasis of the organism, have more in common than most tissues which are regionally united.

### Common Origin

The secretory cells of the three organs become evident about the sixth week of embryonal life. Strands of cells of mesodermal origin are imbedded in the splanchnic mesoderm dorsal to the primitive metanephros. This common origin is referred to as the gonadal ridge and it serves as the anlage for elaboration of the secretory tissues of all three steroid-hormone-producing organs. The adrenal cortex tissue and primordial ovary or testis develop simultaneous but distinct organ boundaries by the eighth week. Differentiation of the tissues and migration of the organs continue into the fourth month of fetal life. The cells of the fetal adrenal cortex show secretory capacity in the third month; the true three-zone histology (glomerulosa, fasciculata, and reticularis) of the adrenal cortex is not clearly discernible until the third year post partum.

Since steroid metabolites of endocrine origin are in the urine of newborn infants, there is no doubt that secretory activity is initiated early, probably in the third trimester. The common embryologic origins are vivid in certain pathologic changes such as adrenal-rest tumors associated with the gonads and sex-steroid-producing tumors of the adrenals. Frequently, however, accessory cortical cell masses are found in the connective tissues surrounding the gonads, especially in the broad ligament and the scrotum (sometimes called the accessory adrenal of Marchand). The ectopic tissue sites or pathologic conditions do not fascinate the physiologist and biochemist as much as the secretory products (Fig. 1 and 2) and the metabolic pathways common to the adult endocrine tissues. In the adult, secretory cells of similar histologic structure (large Golgi's apparatus, large pale cytoplasm) are represented by the

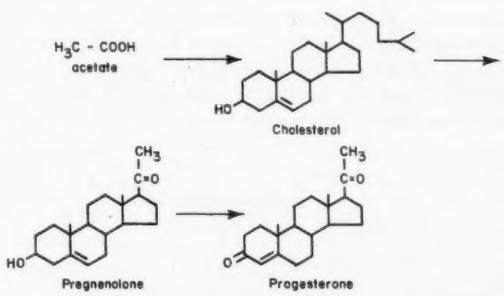


**Fig. 1.** Metabolic pathway from acetate or cholesterol to progesterone common to all steroid-producing endocrine organs.

**The three steroid-hormone-producing organs, the adrenal, the ovary, and the testis, are responsible for unique regulation of the metabolic processes. In addition, experiments indicate that hormones peculiar to one endocrine organ may exist in all, varying only in quantity. How their selective actions are achieved is not fully understood.**

LEONARD R. AXELROD, Ph.D.

interstitial cells of the testis, certain thecal cells of the ovary, the cells of the corpus luteum, and, in the adrenal gland, by the cells of the zona fasciculata. Striking similarities of secretory potential in these tissues can be clearly demonstrated biochemically, as well as embryologically or histologically.

## Metabolic Activities

Experimental evidence has long confirmed that the adrenal gland elaborates and secretes not only the hormone peculiar to this tissue, but also hormones ordinarily associated with the testis and ovary. Baseline equivalents of estrogen and androgen metabolites are in the urine of castrated, but not adrenalectomized, males and females respectively. Extracts of adrenal glands have been shown to contain estrone and $\Delta^4$-androstene-3, 17-dione, the compounds which probably cause the estrogen and androgen metabolites to appear in the urine of castrated individuals. Normally, both the testes and ovaries produce male and female hormones (Fig. 3), the difference being quantitative, rather than qualitative. In recent years many of the biochemical pathways formerly attributed to a particular endocrine organ have been shown to exist in all. Recent studies have shown that the secretory tissues are omnipotent when presented with the proper hormone precursor. Possible exceptions occur in case of the inability of normal testicular and ovarian tissues to elaborate an aldehyde at carbon 18 and a secondary alcohol at carbon 11 of the steroid molecule. These configurations are characteristic of the adrenal gland (Fig. 4). The capacity of the gonads to synthesize these other functional groups on the steroid molecule probably will be proved soon, and thus even the configurations considered unique for the adrenal will be antiquated.

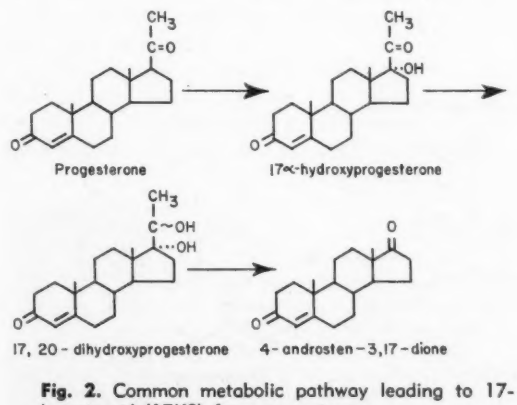


**Fig. 2.** Common metabolic pathway leading to 17-ketosteroid (17KS) from progesterone.

Recent experiments have shown that the secretory tissues of the testis, ovary, and adrenal cortex have in common numerous enzymatic pathways for synthesis of the steroids (Fig. 5). For example, if a suitable precursor compound such as $\Delta^5$-pregnenolone is presented to these tissues *in vitro*, the tissues can successfully (1.) transform the $\Delta^5$, 3β-hydroxyl group to an α-β unsaturated-3-ketone, (2.) oxidize the hydrogen atoms at carbon 17 and 21 to alcoholic

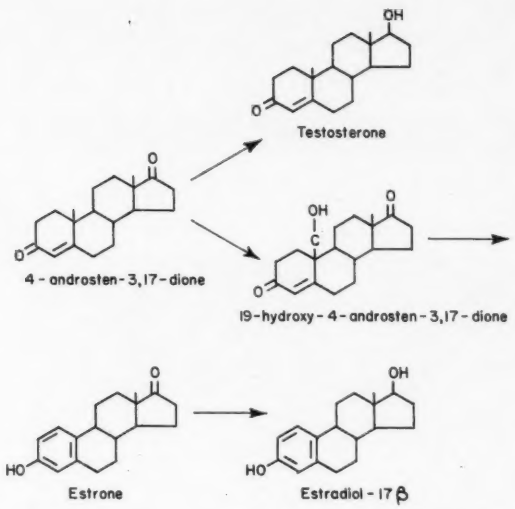


**Fig. 3.** Metabolic pathway leading to biosynthesis of androgens and estrogens.

groups, (3.) oxidize a hydrogen of the carbon 19 methyl group to an alcohol, (4.) oxidize the 2-carbon side chain to a 17-ketone, (5.) oxidize a hydrogen at carbon 6 to a secondary alcohol, and (6.) aromatize ring A.

What, then, is the real difference among the steroid-producing tissues, besides their obvious regional separation? It is regulation. The enzymatic mechanisms which are directly responsible for the elaboration of the hormones from precursor materials are under direct regulation by hormones produced by the anterior pituitary gland (and other neurohumoral stimuli). Adrenocorticotrophin (ACTH) stimulates the secretion of hydrocortisone and corticosterone from the adrenal, but it is so selective that it does not stimulate the testis or ovary to secrete the gonadal hormones. Also, whereas pituitary follicle-stimulating hormone (FSH.) and luteinizing hormone (L.H.) are responsible for the elaboration of the gonadogens (that is, estradiol-17β, testosterone, progesterone), no effect on the adrenal

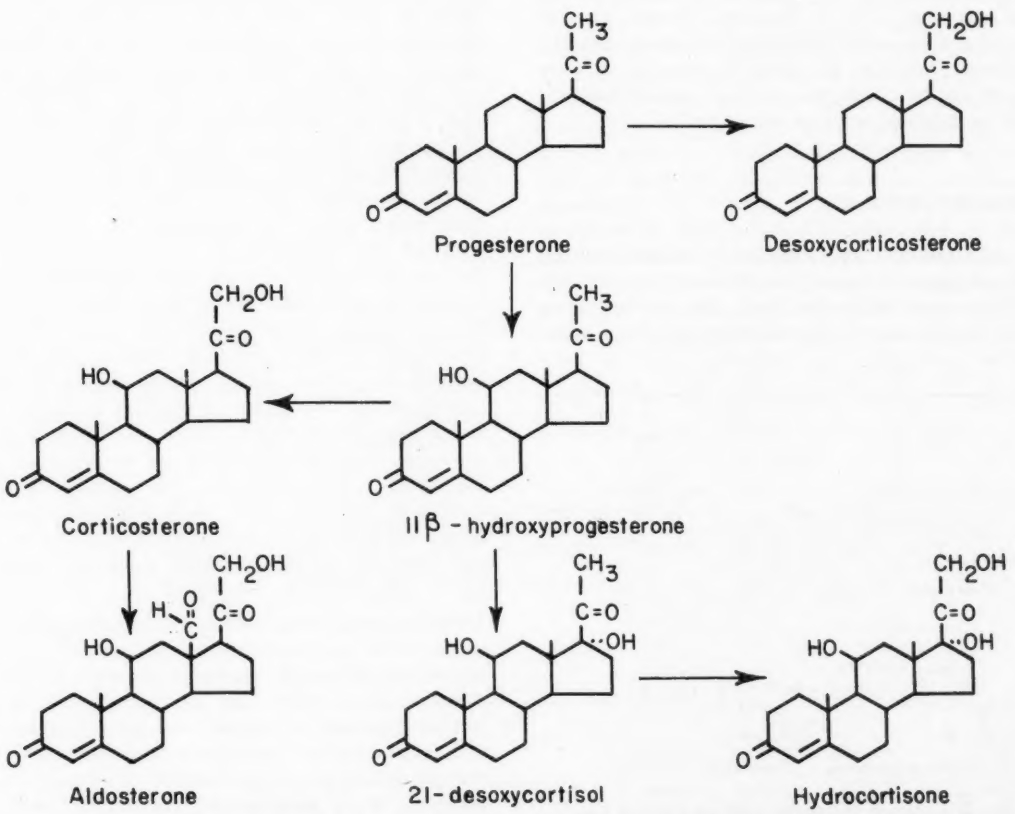


**Fig. 4.** Metabolic pathways leading to the synthesis of the corticosteroids.

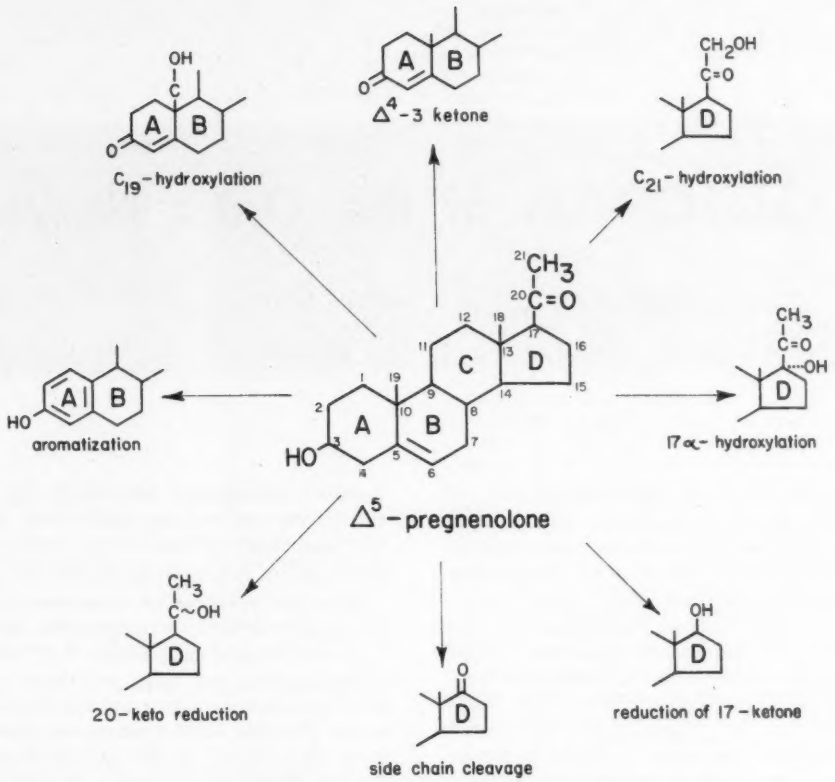


**Fig. 5.** The pluripotentiality of the steroid producing endocrine organs. Metabolic pathways common to the testes, ovaries, and adrenals.

gland has been clearly demonstrated. The difference, then, must be in the ability of the pituitary hormones to stimulate selectively one or more enzymatic mechanisms peculiar to each endocrine organ. Otherwise, since the tissues are omnipotent, the release of any of the previously mentioned pituitary "trophins" would lead to the elaboration of all steroid hormones. Unfortunately, the mechanism or mechanisms concerned with the regulation are not understood. Several possibilities exist:

1. The enzyme or enzymes responsible for the identical biochemical step in each gland may be structurally different, so that stimulation must come from a pituitary hormone, or other neurohumoral device, capable of entering the reaction.

2. The genetics of each cell in the gland may limit the elaboration of any particular enzyme, and even under maximum stimulation only feeble quantitative response would be possible.

3. The hormone synthesis may be regulated as a function of cellular, mitochondrial, microsomal, or nuclear membrane physicochemical differences, which prevent the action of all but one of the neurohumoral stimuli in a selective fashion.

4. A particularly enzymatic step which is neurohumorally stimulated may be differently rate-limited in each organ and would involve competition for substrate.

## Conclusions

Under normal conditions, and for the purposes of medical practice, each of the endocrine organs will still be associated clinically with the elaboration of a selective steroid hormone(s).

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# GLIOMA of the Optic Nerve

HAROLD BEASLEY, M.D., and JOE L. BUSSEY, M.D.

GLIOMAS OF THE optic nerves are not rare and are usually seen in young people around puberty, the average age of patients being from 10 to 14 years. An estimated 75 per cent of optic nerve tumors are gliomas. Forty-six cases, verified pathologically, were reported from the Mayo Clinic for a 41-year period. Twelve of these were limited to the optic nerves and 34 were in the chiasm or tract. There is a definite relationship between Von Recklinghausen's disease and glioma of the optic nerve. Marshall reports the incidence of glioma in neurofibromatosis as approximately 16 per cent, and the generalized disease occurs in approximately 1 in 200 in the general population. This pertinent fact is helpful in the diagnosis of gliomas of the optic nerves.

The pathology of these tumors is not always constant. In the optic nerve, the fibers are separated into bundles by vascular septa entering from the pia. The bundles are further separated by a glial network which contains astrocytes, oligodendrocytes, and microglia. Gliomas are composed of astrocytes and oligodendrocytes, one cell type usually predominating. Davis thought that most of these tumors were composed primarily of astrocytes and described five different stages in their evolution: (1) hyperplasia of astrocytes and oligodendrocytes, (2) extension of the growth through the pial sheath causing thickening of the arachnoid, (3) extension of the tumor cells into the sheath of the optic nerve, (4) destruction of landmarks of the sheath by the gliomatous growth, (5) obliteration of landmarks in the nerve stem. Hudson and Verhoeff considered the process one of degenerative gliomatosis.

Unilateral proptosis is the most common sign with these tumors; it is usually axial with no involvement of the extraocular muscles. The commonest symptom is failing vision, associated with either optic atrophy or papilledema. Meningioma is probably most often confused with glioma, but usually the extraocular muscles are involved early and failure of vision occurs later. Also, gliomas occur usually in the first decade of life and meningioma after 40 years of age.

When an orbital tumor is suspected, a thorough investigation is in order. Examination should include a general physical examination with blood studies; roentgenograms; ear, nose, and throat consultation; neurosurgical consultation; and a complete eye examination. The most helpful roentgenographic views are those taken in the Waters and Caldwell positions, views of both optic foramina, lateral stereoscopic views of the skull, and stereoscopic views of the base. Pfeiffer studied 200 cases of orbital tumors and found that diagnosis could be made in 42 per cent of them by roentgenographic studies alone.

Eye examinations should include careful muscle studies, accurate measurement of proptosis, refraction, and measurement of both central and peripheral fields. The most common roentgenographic finding in glioma of the optic nerves is enlargement of one optic foramen, as compared with the opposite side. If the tumor extends into the chiasm, there is often an omega appearance of the sella. This consists of a neckline shadow resembling a gourd that extends from the body of the sella under the anterior clinoid process.

Four cases have been seen in the authors' practice in the past eight years. These were all diagnosed preoperatively and confirmed by pathologic examination. The predominating cell type was astrocytoma.

## Case Reports

CASE 1.—A white female was first seen Nov. 3, 1952, at the age of 4 years. Initial complaints were proptosis of the right eye of three months' duration and exotropia of three weeks' duration. There was no light perception in

**The authors report 4 cases of glioma of the optic nerve, all of which were diagnosed preoperatively, with diagnosis confirmed by pathologic examination. Roentgenographic studies are especially valuable in examination of such patients.**

the right eye, and vision was 20/30 in the left eye. Extraocular muscles were intact and the right pupil did not react to direct light. There was papilledema of 7 diopters on the right with a normal left fundus. Routine examination, including roentgenograms, revealed no further evidence of tumor. Because of the positive clinical findings, roentgenographic examination was repeated, and the right optic foramen was definitely enlarged as compared with the left.

On Nov. 12, 1952, a Berke modification of the Kronlein procedure was performed; an optic nerve tumor extended from the posterior aspect of the globe through the optic foramen. It was not possible to remove all of the tumor. A neurosurgeon who assisted in the surgery elected to do no intracranial surgery.

This patient has had no extension of this tumor, and was well at the time this report was written, without extraocular muscle palsy. She has about 2 mm. of proptosis on the right. There has been no change in the clinical and roentgenographic findings in eight years.

CASE 2.—A colored male was first seen Oct. 22, 1957, at age 15. There was right intermittent exotropia and poor vision in the right eye of one year's duration. Corrected vision was right eye 10/200 and left eye 20/15. Questionable ptosis of the right upper lid, inconstant right exophoria-tropia, and incomplete primary optic atrophy on the right were observed. Visual fields revealed constriction to 10 degrees on the right and normal on the left, with use of a 3 mm. white target at 33 cm. Routine investigation, including roentgenograms, was otherwise not informative.

In the next six months, exotropia changed little, but mild proptosis on the right became evident. The patient was re-examined in June, 1958; with the Hertel instrument proptosis measured 20 mm. on the right, as compared to 16 on the left. Visual acuity was right eye, 10/200 and left eye, 20/15. Roentgenograms were repeated; the right optic foramen was enlarged as compared with the left. There was some weakness of elevation of the right eye. In addition, there was atrophy of the optic nerve of this eye and it was 5 diopters hyperopic at the posterior pole.

On Aug. 18, 1958, a Berke modification of the Kronlein procedure was done; a large optic nerve tumor extending from the eyeball to the optic foramen was removed up to the foramen, but some tumor had extended into the foramen. After operation proptosis was reduced to 17 mm. on the right, compared with 17 mm. on the left. There was no residual ptosis or extraocular muscle palsy. This patient has had no signs of tumor recurrence in two and a half years, and was attending college at the time this report was written.

CASE 3.—A white male child was first seen March 4, 1959, at the age of 18 months. The only symptom was proptosis of the right eye of three months' duration. This was an axial proptosis with no muscle palsy, and was not accurately measured because of the child's age. Positive findings were pallor of the right optic nerve head and roentgenographic evidence of enlargement of the right optic foramen.

On March 10, 1959, a Berke modification of the Kronlein operation was done. A glioma of the nerve extending from the eyeball through the foramen was removed up to the foramen. This child has been symptom-free for two years. Some ptosis and weakness of the elevators of the right eye has been present since surgery.

CASE 4.—A white female child was first seen Jan. 12, 1960, at age 3. Chief complaints were proptosis of the left eye and exotropia. The mother of the patient had neurofibromatosis and optic atrophy. The right optic nerve was atrophic, and an elevated gray mass replaced the optic disc on the left. Visual acuity could not be measured, but it was obvious that the child did not see well. There was proptosis of the left globe, which deviated upward. There was a palpable mass below the eyeball. On roentgenograms enlargement of both optic foramina and erosion of the anterior clinoids could be seen. There were cafe-au-lait spots over the child's body.

Because the tumor was presenting, it was removed by an anterior approach through Tenon's capsule. Tenotomy of the inferior and medial recti muscles was performed. The tumor had replaced the optic nerve and extended into the foramen. Proptosis was relieved by the operation, and no further progress of disease has been noted. The prognosis is, of course, poor.

## Discussion

Three of the four patients reported showed proptosis as an initial sign. In three of these, there was associated muscle imbalance, there being intermittent exotropia in two and palsy of the muscles in the other. In the fourth case an associated systemic disease, neurofibromatosis, was found. Enlarged optic foramina were demonstrated on roentgenograms in all of the patients, and the sella was eroded in the patient with Von Recklinghausen's disease. In two of these cases, optic atrophy was present. In another papilledema was seen, and in the child with neurofibromatosis the nerve head had been replaced with tumor mass. Visual acuity was reduced in the involved eye in all four cases. In three cases the tumors were removed through a lateral orbitotomy, and in one the anterior approach was used. None of the neoplasms was removed in its entirety. At present, one patient has been well with no progression of disease for eight years, another for three years, and a third for two years. The patient with neurofibromatosis has shown no progression of disease for one year, but because of multiple sites of fibroma, the prognosis is poor.

Dr. Harold Beasley and Dr. Joe L. Bussey specialize in the practice of ophthalmology in Fort Worth. Their paper was given before the Section on Ophthalmology during the Galveston Annual Session on April 24, 1961.

## Summary

Pathologic studies indicate that gliomas are primarily astrocytomas. They are sometimes related to neurofibromatosis. When orbital tumor is suspected, complete investigation is essential. Roentgenographic studies are particularly valuable. Four cases are presented, all of which were diagnosed pre-operatively and confirmed by pathologic examination. Proptosis was the most consistent finding, but tumor of the optic nerve should be suspected when recent loss of vision in one eye is associated with deviation. This manifestation may be present before proptosis, optic atrophy, or papilledema. Although these tumors are not entirely removed, they are not necessarily recurring. It is too early to make any predictions about the ultimate fate of the patients reported, and undoubtedly some recurrences will necessitate neurosurgical treatment. All of them are having close ophthalmologic and neurosurgical follow-up study.

ADDENDUM. One of the patients (Case 3) showed signs of tumor recurrence in June, 1961, at which time there was roentgenographic evidence of further enlargement of the right optic foramen. Transfrontal exploratory operation showed that the tumor had extended to the chiasm. The left optic nerve appeared normal.

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## Life Span of Animals Is Puzzling

Tortoises are probably the longest-lived animals, although fishes, birds, and man are not far behind. Tortoises and fishes, notes an article in *Scientific American,* seem to have long life spans because they can keep growing indefinitely, though rate of growth diminishes with age.

Well-attested ages are hard to obtain for long-lived species unless the animal has some structure that can be dated, such as the equivalent to growth rings in trees.

Without a birth certificate the age of man is especially hard to determine.

Animals which have structures for estimating growth include the sturgeon in which the rays of the pectoral fin show clear annual growth "rings" when sectioned. Scales of fishes offer another clue to age, and the waxlike plug in the external ear tube of the whale indicates yearly growth. In the scallop, slow winter growth alternating with fast summer growth creates regular bands, normally a pair a year, and in rams the horns are a fair indicator of age.

Generally speaking, large size is correlated with a long life span, but there are many exceptions even within families. For example, the domestic cat lives almost as long as the lion. In dogs, the larger breeds have shorter lives than the smaller. Many small birds lived for decades when they were protected from harm.

CASE REPORT

# Primary Fibrosarcoma of the Thyroid

JOHN G. FRIES, M.D., JAMES ALLEN CHAMBERLIN, M.D., and THOMAS G. VANDIVIER, M.D.

**Existence of primary fibrosarcoma of the thyroid gland is not accepted by some individuals and, therefore, its reported incidence is low. A case is presented of a woman with a 30 year history of a thyroid mass, in which the diagnosis of primary fibrosarcoma was confirmed by histologic examination.**

A SUGGESTED reason for the low reported incidence of primary fibrosarcoma of the thyroid gland in the United States, as compared to European figures, is that physicians generally accept Ewing's belief that true sarcoma of the thyroid has not been demonstrated. In addition, there is low incidence in the United States of fetal adenoma, from which fibrosarcomas are believed to arise. In 1960, Chesky and others[1] reported four cases of primary fibrosarcoma of the thyroid gland from 628 malignant goiters removed during the previous 40 years. With the inclusion of four previously substantiated cases the total number of cases reported in the United States is eight. Glass and others[2] reported the coexistence of fibrosarcoma, adenocarcinoma, and Hashimoto's disease in a single thyroid specimen. The following report increases the total number of reported cases of fibrosarcoma of the thyroid gland to ten.

## Case Report

R. P., a 76 year old white woman, was seen first by an internist in May, 1957. She complained of severe substernal pain, backache, nausea, and vomiting. There was a 30-year history of a mass which had increased in size in the thyroid area. The patient was given medications including anticoagulants for severe angina pectoris and coronary insufficiency. Surgery for the thyroid mass was deferred because of extreme coronary insufficiency. In May, 1959, an examination could not be completed because of sudden onset of an acute anginal attack. The mass was believed to represent thyroid carcinoma, but surgery was deferred.

In January, 1960, the patient was given an ablative dose of $I^{131}$ and Cytomel was prescribed. The mass continued to increase in size and forced the trachea toward the left, causing difficulty in breathing and other compressive symptoms. Adductor paralysis of the right vocal cord was evident.

In December, 1960, during quiescence of cardiac symptoms, anticoagulant therapy was discontinued. The patient was admitted for surgery, and the thyroid gland was exposed through an incision of the low collar area. A 7 by 8 cm. mass which had replaced the right lobe of the thyroid extended down to the clavicle. The isthmus was involved also and the trachea was deviated to the left. The tumor and the isthmus were removed to allow for decompression of the trachea. The right recurrent laryngeal nerve was dissected out and preserved, and prophylactic tracheostomy was performed.

Histologic sections of the tumor revealed neoplastic cells, most of which were spindle-shaped with elongated cytoplasmic processes. In many instances the cells formed relatively small multinucleated cells. Blood vessels demonstrated endothelium replaced by neoplastic cells and direct extensions of the neoplasm. Widely dispersed small groups of thyroid follicles, lined by a low cuboidal epithelium,

**Dr. Fries, the senior author, and Dr. Chamberlin, both of Houston, specialize in the diagnosis and treatment of tumors of the head and the neck and in surgical diseases of the thyroid. Dr. Vandivier practices internal medicine in Houston.**

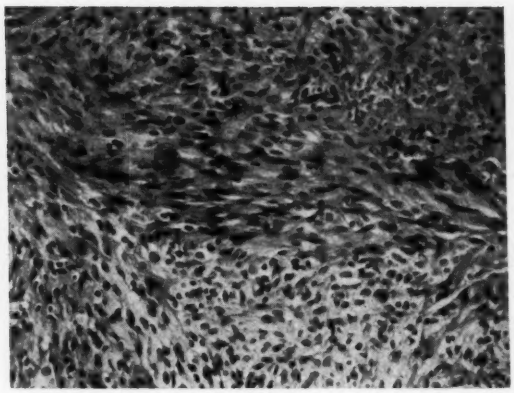

**Fig. 1.** Spindle shaped neoplastic cells with elongated cytoplasmic processes. Hematoxylin and eosin stain. (X 112).

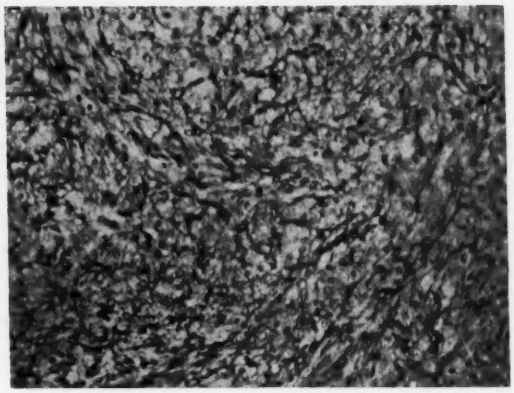

**Fig. 2.** View showing reticulum fibers between the neoplastic cells. Reticulum stain (X 112).

were noted. Reticulum and Masson trichromic stains indicated that the component cells formed moderate amounts of reticulum. Collagen was present in the trichromic stain. This reticulum was interpreted as being formed by the cells of the neoplasm which arose from connective tissue elements. The tumor was diagnosed as a poorly differentiated fibrosarcoma arising from the thyroid gland.

The patient responded well after surgery. The tracheostomy tube was removed on the fifth postoperative day and the patient was discharged from the hospital. She continued to do well at home until the fourteenth postoperative day, at which time she experienced severe substernal pain and dyspnea, collapsed, and died within 20 minutes, apparently from acute myocardial infarction.

## Comment

A case report of a 76 year old white woman with a 30-year history of goiter is presented. Surgery was delayed because of acute coronary insufficiency, and ablation of the thyroid with radioactive iodine was attempted. Later, surgical decompression was performed as a semi-emergency procedure, and the tumor proved to be a fibrosarcoma arising from the thyroid gland. Eight substantiated cases of thyroid fibrosarcoma have been recorded in the United States literature, plus one case of coexistent fibrosarcoma, adenocarcinoma, and Hashimoto's disease. This brings the total number of reported cases to ten.

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## *Scientists in Sneakers*

A unique educational experiment, supported by Olin Mathieson Chemical Corporation in its plant communities, may become a new source for finding "scientists in sneakers".

In a plan worked out with the school board, a talented chemistry teacher was brought to Monroe, La. The teacher chose 30 high school students for a course in college-level chemistry. The result was a new campus hero—the brain. The next year, 30 others took the course. The students have earned more than $80,000 in college scholarships.

Other outstanding teachers were found, and the plan was extended to physics and to five other Olin plant communities. To date, about 400 students have participated in the plan.

# Hyperthyroidism With Associated Follicular Carcinoma of Thyroid

ARTHUR B. TASHNEK, M.D.

FOLLICULAR CARCINOMA of the thyroid is present in less than one per cent of all cases of hyperthyroidism. It is hoped that the present article will help to clarify present-day therapy of hyperthyroidism.

## Case Report

A 44-year-old white woman was first seen March 4, 1958, with chief complaints of dizzy headaches and epistaxis, symptoms that had been present for three months. She had been in good health and denied previous similar episodes. Headaches were bilateral and frontal in location and lasted for periods varying from several hours to all day. Some relief was obtained with aspirin; she had no associated symptoms. Mild nervousness had been present in recent months, but the patient denied any emotional upset. She thought that she had gained a little weight. A recent chest roentgenogram had been normal, and there was no history of hypertension.

Epistaxis consisted of a few streaks about once a month. The patient had a normal menstrual history and had had a fibroid tumor removed from the uterus in 1945. The rest of the inventory by systems and the past history were negative.

The patient's father had died of a heart attack. Her mother, five sisters, and four brothers were in good health. In 1952, her husband had been killed in an auto accident; she had one daughter who was in good health.

The patient was well nourished and well developed; she weighed 128 pounds. Temperature was 98.6 F., pulse rate 106, and blood pressure reading 140/62 mm. of mercury. There was a fine tremor of the fingers. The eyes were prominent, and the following signs were positive: proptosis, infrequent winking (Stellwag), lid-lag (Von Graefe), failure of convergence (Mobius), failure to wrinkle brow on upward gaze (Joffroy), and stare (Dalrymple). The nasal septum was deviated to the left. A smooth, firm, diffusely enlarged non-tender goiter was present; it moved freely on swallowing. No lymphadenopathy was found.

**The author believes that radioisotope therapy is indicated in most cases of hyperthyroidism. $I^{131}$ is the treatment of choice in patients older than 40 and in selected cases of patients between 20 and 40 years old.**

The heart was normal in size, and a soft systolic mitral murmur was detected. The aortic second sound was louder than the second pulmonic sound. Examination of the chest and abdomen showed no abnormal findings. Pelvic examination revealed a nodular, hard uterus enlarged twice normal size, and a small cystocele. There were small varicose veins of both legs; the rest of the findings from examination were negative.

The laboratory findings were as follows: $I^{131}$ uptake 80 per cent in 24 hours; protein-bound iodide level 12 micrograms/100 cc.; hemoglobin content 12.1 Gm.; hematocrit reading 39 mm.; white blood cell count 12,000 with a differential count of 67 polymorphonuclear leukocytes, 27 lymphocytes, and 6 monocytes.

Urinalysis was normal and subsequent white blood cell counts were within normal limits. Gammogram revealed increased thyroid function compatible with thyroid hyperplasia and clinical toxicity, and the organ was slightly asymmetrical and enlarged (Fig. 1).

On March 25, 1958, Tapazole, 15 mg. daily, was given. The amount was increased to 30 mg. daily a week later. The blood pressure gradually dropped to 128/70 mm. and the pulse rate to 74 per minute. On October 13, 1958, hysterectomy was done for bleeding which was thought to be caused by fibroid tumors. The following March 13, Lugol's solution was added to the regimen, and on March 31, subtotal thyroidectomy was performed. Postoperatively, the patient had pneumonitis, and then hypoparathyroidism. At present her condition is well controlled with thyroid, 3 grains daily, with 200,000 units of vitamin D. Serum calcium is 8.9 mg. per 100 cc., phosphorus 4.4 mg. per

100 cc., and protein-bound iodide 5.8 micrograms per 100 cc. Carcinoma had not been suspected before operation; the surgeon did not suspect it even after the gland was removed.

*Pathological Report.*—The specimen was the greatest portion of the thyroid gland, measuring 8.5 by 4.5 by 2.5 cm. and weighing 30 Gm. The outer surface was nodular and was covered by a thin, firm capsule. Cut surfaces through the upper pole of the right lobe showed a rounded area of light gray, firm tissue which was poorly circumscribed and which averaged 0.6 cm. in diameter. The remaining parenchyma of the right lobe was soft, dark red, and translucent. The left lobe was also soft and dark red and was homogeneous on cut section. Near the capsule on the anterior surface at the mid portion of the left lobe, there was a pin-head sized, well circumscribed area of light gray tissue.

Multiple sections from both lobes showed most of the acini to be normal in size and to contain mature colloid. Several circumscribed, although non-encapsulated, nodules were composed of acini of varying size, including some instances of cystic dilatation.

The grossly described "rounded light gray area in the upper pole of the right lobe" contained irregular acinar structures supported by a dense fibrous tissue (Fig. 2). These acini were lined by low cylindric cells, with large and hyperchromatic nuclei that showed occasional mitotic figures. Most of the lumina were small, particularly in the periphery of the tumor, where small groups of neoplastic cells extended into the adjacent parenchyma. In several places groups of tumor cells were in close relation to blood vessels, but no evidence of blood vessel invasion was demonstrated (Fig. 3). Sections from several minute projections attached to the surfaces of each lobe showed a parathyroid body on the right and another one on the left.

The lesion described as "a pin-head sized light gray area near the anterior surface in the mid-portion of the left lobe" consisted of small acini arranged in a circle and enclosed in a thick fibrous capsule. These acini were lined by uniform low cuboidal cells and their lumens contained mature colloid.

The lesion described in the upper pole of the right lobe was classified follicular carcinoma. The tumor was fairly well differentiated but, nevertheless, was invasive in character. The small nodule in the mid-portion of the left lobe represented an adenoma. It was believed to be benign in view of the character of its cells and because of its intact capsule. The remaining non-encapsulated nodules were regarded as centers of involutions. A few of the remaining acini showed remnants of papillary enfoldings, which may have been caused by primary hyperplasia.

*Diagnosis.*—Follicular carcinoma, grade II, of the right lobe of the thyroid and follicular adenoma of the left lobe of the thyroid. Parathyroid body, right and left.

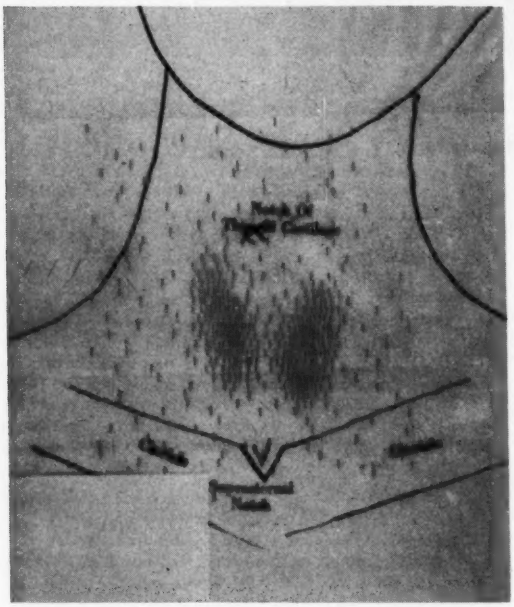

**Fig. 1.** Gammogram showed evidence of increased thyroid function compatible with thyroid hyperplasia and clinical toxicity; the organ was slightly asymmetrical and enlarged.

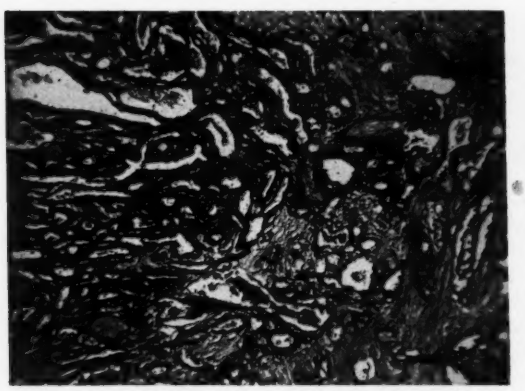

**Fig. 2.** Low power photomicrograph of section from upper pole of the right lobe of thyroid.

**Fig. 3.** High power view of same tissue in Fig. 2.

## Discussion

This supposed rarity is important for the following reasons:

1. Could some cases of carcinoma metastasize after radioisotope therapy?

2. Are these carcinomas the result of using carcinogenic drugs such as thiouracil?

3. Are carcinomas common enough to make surgery the best method of routine treatment?

The incidence of carcinoma of the thyroid associated with exophthalmic goiter varies from 0.4 per cent, reported by Black,[3] to 1.75 per cent, when all cases found in the literature were combined.[19] One must keep in mind that classification has changed in the last decade. The apparent increased incidence is shown by Black[3] and a subsequent report by Pemberton[19] from Mayo Clinic. The incidence in thyroidectomies from 1907 to 1945 was 0.1 per cent; during the period from 1938 to 1945 it was 0.4 per cent. This may be the result of increased interest, careful pathologic examination, and better diagnostic tests, such as protein-bound iodide and radioisotope techniques. The incidence of carcinoma associated with toxic nodular goiter varies from 0.9 per cent in normal areas to 10 per cent in endemic goiter areas.[23]

It also makes a difference whether the series is accumulated primarily for exophthalmic goiters[20] or by an investigator interested in thyroid carcinomas.[10] There are small series reported with carcinomas (four of 226 reported by Clute and Warren) and large series with few carcinoma in exophthalmic goiters (1 in 1,900 cases by Ward). About 20 to 30 per cent of exophthalmic goiters contain adenoma (Pemberton).[20] Many believe that carcinomas arise in these adenomas, but Lindsay and associates[6] are of the opinion that carcinoma in such cases is present before the hyperthyroid state. Although carcinomas have arisen in adenomas in many instances, Pemberton[20] and others[6] have reported cases with no evidence of pre-existing adenoma. Many of these lesions have a thick capsule, suggesting slow growth and perhaps a long existence. Most are low grade malignant tumors, but metastatic lesions have been found. Thus, prophylactic removal of benign nodules of the thyroid in hope that malignant disease will be thwarted seems to be a false presumption.

In this case, an adenoma was present in the left lobe of the thyroid, but the carcinomatous lesion was well encapsulated in the right lobe. Several cases reported by Black did not have the characteristic pathologic changes of hyperplasia, and neither did this case. The normal pattern of the gammogram precludes the possibility that this was a hyperfunctioning carcinoma. This combination of diseases was present before thiouracil therapy, and the increased incidence is probably because of awareness rather than the carcinogenic effect of thyroid blocking agents.

The complications of surgery are: (1) regeneration or failure to remove enough tissue, (2) removal of the parathyroid glands with development of tetany, (3) damage to inferior recurrent laryngeal nerve causing vocal cord paralysis, (4) risks of operation and anesthesia, and (5) myxedema.

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The complications of radioiodine therapy are: (1) permanent myxedema in 3 to 10 per cent of cases, which is slightly less than the number seen after surgery, (2) mild radiation sickness, and (3) need in about one-third of cases for a second dose of $I^{131}$.

In most places $I^{131}$ treatment is less expensive and is easier on the patient; in addition, it does not require hospitalization. $I^{131}$ is 90 per cent beta-particles, with a maximum range of 2 mm. and an average of less than 0.5 mm., and this penetration allows insignificant extrathyroidal radiation. If the incidence of associated carcinoma is less than 2 per cent, then the risk of anesthesia death, surgical complications, and postoperative complications would not preclude the continued use of radioisotopes for treatment of patients with exophthalmic goiters. Certainly the shock to the patient is less financially, as well as physically. Patients with more severe hyperthyroidism can be treated more quickly and with more gradual reduction of thyroid activity.[16] Some investigators think that it is wise to give thiourylene before $I^{131}$ therapy in severe hyperthyroidism, since this brings the patient's condition under control more rapidly; (two to four weeks usually suffice).[7]

The drawbacks to the use of radioisotopes at present include limited availability, the unknown of long-term follow up study, and contraindication in pregnancy. Nevertheless, the psychologic effect of a radical resection of the neck must be considered. Elgee[7] believes that radioiodine is the treatment of choice in patients older than 40 and in selected patients in the 20 to 40 age bracket. Crile[16] says there is no need to even consider the possibility of cancer as an indication for surgical treatment in Grave's disease. Nadal,[18] in a 20 year follow-up study of 31 patients with cancer of the thyroid, reported that 13 had papillary carcinoma, of whom 2 had died of cancer and 5 of other causes, and the remaining 6 were alive and well; and 8 had follicular carcinoma, of whom 2 had died of cancer, and 5 of other causes, and 1 was alive and well. Lindsay[6] showed a survival rate of 60 per cent at the end of 30 years with papillary carcinoma, and only 15 per cent in ten years for other types.

Jude and associates[12] reported a long term follow-up study on 139 patients with cancer of the thyroid at Johns Hopkins Hospital and found that 5.7 per cent had hyperthyroidism. There was a recurrence rate of 21 per cent (11 of 52 patients) in those who had not originally had a radical neck dissection. Most malignant tumors were found in single nodules; if there was a diffuse enlargement of the gland, it was one and seven-tenths times as likely to be of low malignancy. The survival rate for papillary carcinoma was 91.5 per cent at five years and 73.3 per cent at ten years. Jude recommends radical surgery. In contrast to this is the report on 725 patients with papillary carcinoma by Frazell,[9] who says that there is no surgical treatment of papillary cancer other than a conservative approach. In his opinion, these are long standing tumors in which invasive properties may be accelerated after years or decades of relative quiescence. Patients younger than 40 years when they were first seen had a five year survival rate of 96.8 per cent, as compared with one of 61 per cent in those over 40 years.

Malignancy of the thyroid occurs in a ratio of 7 to 3, and is more common in the female.[15] This same author found that 80 per cent of patients with papillary carcinoma survived for five years. Cancer of the thyroid progresses five times more rapidly in men than in women.[17] Average survival time was eight years for the papillary variety and four and one-half years for other varieties in 283 cases reported by Mustacchi.[17] More recently, scattered cases have appeared in the literature, such as those reported by Holsinger and Stevens,[11] Longo,[14] and Eastcott.[5]

The genetic and carcinogenic aspects of $I^{131}$ therapy should not be exaggerated; when it is given by a skilled therapist, it presents no problem. Elgee states that cancer can be produced in rodents with $I^{131}$ by giving a small dose of the isotope, followed by administration of thiourylene. There has been no evidence to show that use of radioiodine increases the incidence of carcinoma of the thyroid. A small carcinoma missed at operation might be destroyed by radioiodine therapy; possibly this would have occurred in the present case.

Eller and co-workers[8] treated 436 patients with toxic nodular goiter. The figures on the low incidence of carcinoma in diffuse and nodular toxic goiter they reported concur with those of others mentioned in this report.

## Summary

Apparently the low incidence of malignancy, coupled with a majority of low grade, slow growing carcinomas (majority are papillary and follicular grade II carcinomas) seen in association with hyperthyroidism would indicate that radioisotope therapy is the management of choice in most cases of hyperthyroidism. $I^{131}$ is the treatment of choice in patients over 40 years old and in selected cases from 20 to 40 years old.

Conservative surgery is of little value in high grade malignancies.

The complications of radioisotope therapy appear to be less than those with surgery.

There is a high percentage of survival at five and at ten years; many of the older patients who have been reported died of other diseases. The survival rate was higher in patients in the younger age group with papillary carcinoma, and a majority of carcinomas associated with hyperthyroidism were of this type.

Toxic nodular goiters are being treated with radioisotopes with apparently favorable results.

Surgical treatment is indicated for pressure symptoms.

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# Fibrolipoma of the Tonsil

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SINCE FIBROLIPOMA of the tonsil is rarely reported, the author documents one further instance of this unusual tumor. The subject is broadened to include fibrolipoma of the pharynx and hypopharynx.

Review of the literature reveals but five reported cases of this tumor on the tonsil. Lifschitz[10] reported a fibrolipoma of the left tonsil in which tonsillectomy was performed, and documented two similar cases, one of Halphen in 1928 and one of Hiss in 1915. Galetti[5] reported a yellow, bean-sized fibrolipoma of the right tonsil in a ten year old female patient. The tumor produced no symptoms and was observed incidentally during an attack of tonsillitis; treatment was by interval tonsillectomy. Filippi[4] reported a 1.0 by 0.7 cm. cylindrical, pedunculated fibrolipoma arising from the superior pole of the left tonsil. His patient, a 25 year old laborer, was treated by tonsillectomy.

Including the previously mentioned cases, a total of 36 cases of fibrolipoma in the pharynx and hypopharyngeal structures were reviewed. In the interest of brevity, these cases were classified according to age and sex incidence, site of origin, type of treatment, symptoms produced, and incidence of recurrence.

**Fibrolipoma of the tonsil has seldom been reported in the literature. The author presents a new case and reviews five cases of the tumor at this site and 33 cases of fibrolipoma in the pharynx and hypopharynx. Incidence, sites of origin, and types of treatment with reference to recurrence are discussed.**

The ages of patients with this tumor varied from one year to 81, the highest number being in the 25 to 45 year group. The occurrence of this tumor is about equally divided between the sexes; 19 patients were male and 17 were female.

The site of origin is of interest in that most of these tumors arose from the arytenoid or the aryepiglottic fold and base of the epiglottis. Seventy four per cent of the cases reviewed arose in these areas. The false vocal cord was the site of origin in two, and the vallecula in one. The tonsil was the origin in the five cases noted previously and in one instance the true vocal cord (Dolowitz and Keyes[3]). In this last instance the pathologic classification was in doubt since elements of a granuloma were also noted.

Three hypotheses concerning the origin of the tumor have been noted. Since no definitive work in support of these theories is presented and each remains to be confirmed, it seems sufficient to classify them by name: (1) true anaplastic activity from mesenchymal cells, (2) hypertrophy of fatty tissue from embryonal rests of fat cells in the submucosa, and (3) disturbances of the lipid metabolism at the cellular level.

The symptoms of fibrolipoma depend largely upon its site of origin. On a tonsil the tumor is asymptomatic and does not grow large, probably because the conspicuous position of the mass encourages early treatment. When fibrolipoma occurs on the lateral wall of the hypopharynx, it may become enormous. The tumor may not be discovered until it has grown large enough to cause obstructive symptoms of the swallowing mechanism, or until it is regurgitated from the esophagus into the oral cavity, where it hangs until it is reswallowed. Such a case was re-

ported by Davison; the tumor, 18 inches long, when regurgitated hung out of the mouth down past the chin. In the commonest site, the aryepiglottic fold, symptoms consist of a feeling of a mass in the throat, occasional dysphagia, or intermittent respiratory obstruction. Obstruction to breathing seems to occur more frequently during sleep. The patient tends to aspirate the pedunculated mass into the glottis, awakes in great distress, and remains so until he manages to cough it free. A tumor of the false cord or laryngeal ventricle causes gradually increasing dyspnea, or it may penetrate the submucosa and grow to the outside so that the presenting symptom is a paralaryngeal mass of the neck (Birkett).

The treatment is surgical excision, as the tumor is not radiosensitive (Beck). Preliminary biopsy is not the rule. The mass is usually dense and rubbery and resists the efforts of a biopsy cup forceps, and superficial biopsy tends to yield incorrect diagnosis. In most instances the tumor is so clearly pedunculated that excision via the endoral route is the obvious course. Frequent use of the suspension laryngoscope to expose the operative site is noted. The diathermy snare is the choice in many instances. Use of an external incision was reported in four cases: one was a transhyoid pharyngotomy, one was a laryngo-fissure, and the other two procedures consisted of dissection

**Fig. 1.** A 2 cm. fibrolipoma attached to excised tonsil.

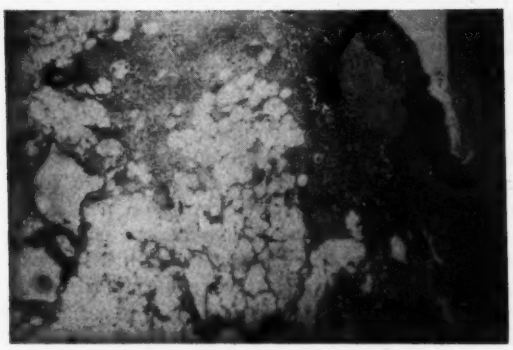

**Fig. 2.** Low power section of tonsillar fibrolipoma.

**Dr. John E. Douglas of Austin, who specializes in otolaryngology, presented this paper before the Section on Otolarygology in Galveston on April 24, 1961.**

of the tumor from the paralaryngeal tissues. Patients with fibrolipoma of the tonsil are treated by tonsillectomy.

Surgeons reporting cases agree that care must be taken to remove the tumor in toto to prevent recurrences, yet the reported incidence of recurrence is small. Since fibrolipoma is a benign tumor, careful routine follow-up examination is not maintained, and the only reported instances of recurrence are those in which symptoms have necessitated further treatment. Flynn removed a fibrolipoma from the aryepiglottic fold in 1925. When the patient was next seen in 1932, massive recurrence was observed at the original site; the size of the surgical specimen was 114 Gm. In 1934 Kramer reported removing a fibrolipoma from the aryepiglottic fold of a patient who had been subjected to a similar procedure by Yankauer three years earlier. At the time of the second procedure, the tumor had grown to a length of 4½ inches. Kramer observed an asymptomatic sessile mass at the same site six months later. Som and Wolff reported removing a 7.5 cm. recurrent mass from the pyriform sinus of a patient from whom they had removed the original tumor two years earlier; since the first procedure had been done with a cold snare, they employed the diathermy snare for the second attempt. Certainly other recurrent cases remain unreported.

Malignant change in fibrolipoma has not been reported. In a screening of the literature for reports of malignant changes in lipomas, only one instance was found in which a lipoma removed from the subcutaneous tissue of the back had a small central area of liposarcoma. In reporting this case, Sampson and co-workers[13] reported two similar instances in the literature.

Fibrolipoma generally appears as a rounded or cylindrical mass which usually is pedunculated. It is generally a faint yellow or a pink tinge and is covered with a thin vascular epithelium. The consistency varies from soft to rubbery hard, depending on the amount of fibrous tissue. Histologic sections show a stratified squamous epithelium with a fibrous

capsule and fibrous septa which separate clusters of fat cells. Vascularity is minimal and inflammatory cells are seldom seen.

The papers on this subject by Saunders[15] and Macionie are of particular value. Those who desire a review of the literature will find the paragraph summaries of each case they list helpful. In addition, Saunders includes several references before 1924 not included in the author's bibliography.

## Case Report

H. R., a 55 year old Negro cab driver, was seen by his family physician for an acute infection of the upper respiratory tract in May, 1960. During examination of the pharynx, a previously unsuspected, asymptomatic, yellow-white, cylindrical mass of the right tonsil was noted. The past history and family history were noncontributory, and there were no symptoms referrable to other systems.

After the acute respiratory symptoms subsided, tonsillectomy was performed and the patient had an uneventful postoperative course.

The specimen was a tonsil with a 2.0 by 0.8 hard rubbery cylindrical mass attached to its medial aspect. On section, the mass was observed to originate from the stratified squamous epithelium and its underlying fibrous stroma. The tumor had a covering of intact stratified squamous epithelium and a thick fibrous capsule, from which multiple fibrous septa originated and surrounded clusters of adipose tissue. No areas of malignant change were noted.

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A complete list of references may be obtained from the author.



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### *ABSTRACT OF DISCUSSION*

DR. EDWARD A. NEWELL, Dallas: Benign tumors of all types seldom originate in the tonsil, with the exception of retention cysts. In a review of benign tumors of the pharynx seen at the Mayo Clinic between 1917 and 1930, New and Childrey found only 17 that had originated in the tonsil, ten of which were papillomas. A review of my records for a nine year period showed only one benign tumor of the tonsil, a small papilloma.

Liviero, in 1933, found 150 benign tumors of the tonsil reported in the world literature; approximately 50 per cent of these were fibromas. Lipomas have been reported by Onodi and Haig. There are scattered case reports of adenoma, myxoma, fibromyxoma, chondroma, mixed tumor, and benign polyps, along with the cases of fibrolipoma mentioned by Dr. Douglas.

If a stricter classification had been followed in earlier years, perhaps more fibrolipomas of the tonsil would have been reported. Jonathan Wright stated in an early textbook that fibromas of the oropharynx were never pure fibromas but were always mingled with fat cells in varying amounts.

In all encapsulated, non-ulcerated tumors originating in the tonsil and not involving surrounding structures, tonsillectomy is indicated instead of excisional or punch biopsy. Local excision with electrocoagulation of the tumor base is perhaps adequate treatment for small papillomas, but because of a probably higher recurrence rate than has been reported, this method is not justified in the treatment of larger tumors of the tonsil. Punch biopsy of tonsillar lesions other than grossly appearing squamous cell carcinoma is also inadequate and may fail to reveal an underlying sarcoma. Sarcomas of the pharyngeal region are particularly likely to exhibit wide peripheral areas of benign tumor. In one case I removed a fibrosarcoma of the hypopharynx and larynx which had a 5 cm. margin of true lipoma with no microscopic indication of the underlying fibrosarcoma.

# BENIGN and MALIGNANT Tumors of the Skin

Arthur C. Curtis, M.D.

SINCE THE SKIN is visible, its lesions are most often brought to the attention of the physician. In dealing with the present cancer-conscious public, it is important that doctors familiarize themselves with the more common lesions of the skin so that they can properly advise and, if necessary, treat patients with such lesions.

The nature of carcinogenesis is, and will continue to be, intriguing. Orr and his co-workers[2, 7, 8, 9] have found that when a mouse's skin is treated with a carcinogen such as 2-methylcholanthrene, visible hyperplasia representing a reparative process occurs in the skin. There then is little change until the tumors appear. Throughout the latent period, however, there is progressive alteration of the collagen and elastic fibers in the dermis and subcutaneous tissues which promotes the assumption that the changes which have occurred in the supporting stroma are the important ones. If the action of 2-methylcholanthrene was on the epithelial cell, the epidermis certainly should show changes tending toward neoplasia during this so-called latent stage. When epidermal grafts thus treated are transferred to an untreated site in the same animal, no tumors develop. If previously treated full thickness grafts are so transferred to previously untreated sites, the capacity to produce these tumors moves with the full thickness graft. These workers have also shown that in a site which has been treated with 2-methylcholanthrene, and then deprived of its epidermis, followed by the grafting of normal epidermis, tumors will develop in about the same incidence as might be expected in intact treated skin. The only permanent component in this area is the stroma. The neoplastic and ultimately invasive growth of the epithelium may be attributed to factors in the dermis affecting the nutrition or possibly enzymatic or hormonal control of the epidermal cells.

## Types of Skin Tumors

Tumors of the skin can be divided in several general groups:

*Benign lesions, congenital or acquired.*—This group includes hemangiomas, lymphangiomas, verrucae, seborrheic keratoses, nevi, and dermatofibromas. These lesions are not invasive, do not metastasize, and often need no treatment unless for cosmetic reasons. Their recognition is seldom difficult, for many have characteristic identifying features. At times, however, an acquired angioma will have the appearance of a pigmented nevus, or a dark seborrheic keratosis will appear similar to a pigmented basal cell carcinoma. In any instance in which there is doubt about the nature of a lesion, biopsy is indicated.

*Premalignant lesions.*—Senile and/or actinic keratoses, leukoplakia and actively growing junction nevi are in this group. Since these are potential malignant lesions, they must either be destroyed at the time they are recognized and before malignancy occurs or must have careful follow-up study.

*Invasive but non-metastasizing tumors.*—The basal cell carcinoma is a good illustration of this form. It may occur in any age group, but is more common in older people. If neglected, it may become extremely destructive, invading the conjunctiva, orbit, nasal mucous membrane, periosteum, and bone.

*Malignant and metastasizing tumors of the skin.*—Early recognition of squamous cell carcinoma, malignant melanoma, and Paget's disease of the nipple and areola should prompt adequate therapy, often with an excellent result. Neglect or procrastination may result in metastasis and death.

*Sarcomas.*—Any of the components of the dermis may give rise to sarcomas. They seldom present characteristic clinical pictures; therefore, diagnosis

**Characteristics, prognosis, and treatment of common skin lesions are reviewed.**

is often made from tissue examination. A blood vessel tumor which is characteristic clinically and pathologically is Kaposi's idiopathic hemorrhagic sarcoma. Fortunately, sarcomas arising from the skin are uncommon.

*Lymphomas.*—The reticuloendothelial system may be the origin of tumors which present in the skin in many different manners. Some are relatively benign, such as the giant follicular lymphoma. Others are progressive and eventually fatal, such as mycosis fungoides, reticulum cell sarcoma, Hodgkin's disease, plasmacytoma, and the leukemias.

*Metastatic tumors.*—These are uncommon in the skin, but should always be considered as a possibility. Invasion of the skin from carcinoma of the breast probably is the most common type of metastatic tumor. Prostatic malignancy, esophageal tumor, and thyroid carcinoma are other types of malignant tumors which might metastasize in the skin.

Since there are so many benign, precancerous, and malignant lesions of the skin, a representative few of the more common ones are described.

## Descriptions of Lesions

*Nevus (mole).*—This is the most common tumor of the skin. The cells of the nevus are melanocytes. They are represented in the basal cell layer of the skin as clear cells which make the melanin of the basal cell. The origin of these cells is from the neural crest, from whence they migrate to the junctional area between the dermis and epidermis. That this migration is not always completely to the junction areas of the skin is shown by the Mongolian spot, the nevus of Ota, and the blue nevus of Jadassohn, all of which are collections of nevus cells in connective tissue.

The usual course of a nevus is one of slow development and change throughout one's life. Some nevi may be present at birth; many appear slowly during childhood. They frequently will undergo greatest change at puberty. Many start as a flat macule with varying amounts of pigment. Some remain as junction nevi; others have cells that migrate to the lower tissues with no connection to the epidermodermal junction and become dermal nevi. Others with a dermal component will slowly rise above the skin, and may eventually lose all relation to the original junctional area. These slowly lose pigment; many of them contain hairs. These are compound nevi, and are benign lesions. In older persons, they may involute slowly.

Lentigo maligna, however, begins as a brown pigmented macule on the face of elderly persons. It grows slowly, has great variation in color, and though not malignant in the beginning, becomes so as growth continues. Its slow growth and late malignancy probably are related to the age of the patients who have such lesions. It always must be considered a premalignant or malignant lesion.

Extensive bathing trunk nevi and the large hairy and polypoid nevi are abnormalities of congenital origin composed of nevus cells, just as other such abnormalities of congenital origin may involve other cells causing other tumors. It is not uncommon to find more than one congenital defect in such patients.

There is no single rule of thumb to evaluate the potential course of a nevus, or whether it is malignant or benign at any specific time. Several observations are helpful. Rarely does a nevus in a child become malignant. Children have junction nevi, and juvenile melanoma may have startling changes in cellular structure, suggesting rapid growth and hence malignancy. These signs of growth, now recognized by pathologists as juvenile melanomas, are a part of the evolution of the nevus. Compound nevi often are lightly pigmented and, like the dermal nevus, most of them are benign. A hairy nevus has long been considered a benign one.

When pigment tends to "flow" from the nevus into the non-involved skin, when the nevus increases in size, body, darkness, or when the nevus becomes vascular and bleeds easily, malignant change should always be suspected. The lesion should be widely and deeply excised. An ulcerated nevus is almost always malignant. A recently appearing junction nevus in an adult or one seen during pregnancy should be suspect and should be closely watched. If growth continues, it should be excised.

The role of trauma in development of a melanoma from a pigmented nevus has not been clearly elucidated. Pack, Lensen, and Gerber[10] have stated that trauma may not be related to malignant change

since the incidence of melanoma at the belt and collar line is small, and men who shave daily have no more facial melanomas than women. There likewise is no histologic proof that trauma of incomplete excision of a benign nevus has ever resulted in melanoma. Indeed, there is evidence that partial excision will not produce melanoma.[12] Pack, Perzick, and Scharnagel[11] believed that not more than 20 per cent could possibly be attributed to trauma, and that often trauma focused the patient's attention on a lesion that already was undergoing malignant change.

Despite the fact that melanoma is thought to be the most fatal of all cancers, other neoplasms offer a smaller chance for survival. Booher and Pack[4] reported a five-year survival rate of 31 per cent in 48 patients with melanoma of the sole; for 29 patients with melanoma of the hands, at least 11 of which had metastasis, the survival rate was 40 per cent. This is a significantly lower mortality rate than occurs with many of the less feared forms of neoplasm. Carcinoma of the stomach, lung, pancreas, and brain offer a much poorer prognosis.

*Seborrheic keratosis.*—This lesion is undoubtedly the most common one about which a patient may inquire. It is a keratotic and often verrucous tumor, especially when fully developed, and derives its other name, "seborrheic", from the greasy feeling conveyed to the examiner when the surface of the tumor is touched. These tumors tend to occur in certain families, and in some people from middle life to old age there may be hundreds. The common locations are the trunk, shoulder and back, and face, neck, and scalp. The lesions are less numerous on the arms, legs, and hands, and in these locations they are likely to be thinner and less characteristic. They do not occur on the palms or soles. The lesions start as yellowish, slightly raised, single or multiple lesions. As they mature, they become much darker and more verrucous. Often they rest on the surface of the skin with a base smaller than the upper surface, so that they have a mushroom-like appearance. Since they are benign, they need not be destroyed. In areas where their presence is cosmetically unpleasant to the patient, they can be easily removed using local anesthesia with a sharp curette, or by light electrodesiccation and curettement. Since they are superficial tumors made up of epidermal tissue only, they heal with little scarring when they are properly removed. There is no evidence that these tumors degenerate into basal cell carcinomas. A similar lesion in the Negro is called dermatosis papulosa nigra.

*Epithelial nevi (nevus unius lateralis).*—Not a true nevus, this congenital growth occurs at birth or shortly thereafter, but sometimes it is first seen in late childhood or early adult life. It tends to involve flexor surfaces, to appear over joints, and, often to appear on only one side of the trunk or extremities. When the lesions first appear, they may be skin colored, yellowish, or slightly brown, flat papules. As maturity occurs, many of the lesions become more verrucous, and some of them turn brown. Treatment should not be instituted until the full extent of linear growth and verrucosity is known. Epithelial nevi do not disappear. They can be left alone, or if treatment is desired for neoplasms on exposed surfaces, surgical excision (if not too extensive) may be performed. Electrocautery has been used successfully to destroy the lesions, but it should be used carefully and with several applications of incomplete destruction. If a single, completely destructive procedure is used, keloidal scarring may follow. Dermabrasion of the involved areas has been successful, but frequently it has to be repeated because of regrowth.

*Sebaceous cyst and keratinous cyst (wen).*—A sebaceous cyst is a lesion varying in size from that of a small pea to that of a walnut, or even larger. It frequently has an orifice from which a rancid, unpleasant, thick secretion can be expressed. The scalp, face, back, neck, and genitalia are common sites. Cysts often are multiple and, when palpated, are movable and firm, and contain thick, sebaceous, cheesy material.

The keratinous cyst has no punctum and is somewhat firmer than the sebaceous cyst; its cells make keratin rather than sebaceous material. When the lesion is opened, keratin, a crumbly substance is seen. It may have an odor, but never as unpleasant as that of sebaceous material.

In both types of cysts, the cyst wall must be removed or destroyed or the lesion will recur. A wen of the scalp is easily removed because the areolar tissue is such that the walls of the wen are relatively free. In many cases, through a small opening in the surface, the cyst's contents can be expressed, and the wall can be removed by a hemostat. Elsewhere, the walls may be attached to the connective tissue and removal may be more difficult. Excision in such cases is often successful; closure should be with nylon sutures. Electrocoagulation of the cyst wall with the Bovie is usually successful if the area is then opened and the cyst and its contents are removed. Smaller cysts can be destroyed by making a small incision, emptying the contents of the cyst, and painting the cyst wall with phenol or trichloracetic acid.

*Senile angioma.*—This lesion is seen on the trunk and sometimes on the extremities, face, and neck of older adults. It seems to occur in certain families, and is a benign tumor composed of mature blood vessels. It is dome shaped and if desired, it can be easily destroyed by electrocoagulation.

*Spider angioma.*—Bean[1] has studied this lesion,

which has an arteriole in the center and extensions like spider legs from the central vessel. It occurs during puberty on the faces of children, during pregnancy; and also in conjunction with gynecomastia and loss of chest and axillary hair in cirrhosis of the liver. The spider angioma is believed to be a result of increased hormonal changes (estrogen) in children and pregnant women, and appears in persons with cirrhosis of the liver because of the inability of this diseased organ to break down the accumulated ketosteroids.

*Mycosis fungoides.*—In 1806 Alibert described "une eruption furfuracee" in a man of 56 years. Tumors later developed. At first, Alibert thought these to be tumors of yaws, and called them "pian fungoide". In 1832, because of the similarity of the tumors to mushrooms, he added the connotation "mycosis". Since then, the term mycosis fungoides has been used to designate a form of lymphoma which has a unique course, frequently a changing picture, and in some instances a long period of activity before termination of life.[3]

The early stage of the disease is called the premycotic phase. Pruritus, often severe, generalized, and persistent for weeks or months may be the only symptoms. This period usually is followed with eruptions of many sorts. Areas of erythema, plaques of fine scale, psoriasiform lesions, raised scaling plaques in some areas with erythema in others, urticaria, and erythema multiforme eruptions may occur. Later, flat infiltrates, nodules, rings, erosions, ulcers, and large ulcerated tumors occur. These may be interspersed with other lesions of the premycotic stage. When tumors form, itching often diminishes or is absent.

The duration of life in this form of reticuloendothelial disease is often much longer than for some of its counterparts in the lymphoma group. The average may be as long as 10 years, but instances of 25 years duration after onset, and longer, have been recorded. Undoubtedly many patients die from intercurrent infection, bone marrow exhaustion, or a result of therapy.

The erythrodermic type of mycosis fungoides begins as an exfoliative erythroderma. It often cannot be differentiated by clinical means from other forms of this disease when it is generalized, but localized forms are easily distinguished. This type is often associated with pruritis, and tumors form soon after onset. Alopecia is common, and in patients with close follow-up study, a specific type of lymphoma may eventuate.

The tumor type (d'emblée) of mycosis fungoides begins with the sudden appearance of one or more opalescent, brownish or violescent tumors on any part of the trunk or extremities. Most often these are reticulum cell sarcomas or lymphosarcomas. Seldom is a plasmacytoma a cause of this stage of the disease.

Is the Alibert type of mycosis fungoides a distinct cutaneous lymphoma, or is it a lymphoma which begins in the skin and if observed long enough differentiates to another type when it invades other organs? In ten patients followed to autopsy, with an average duration of life of 5 3/10 years after the diagnosis was made, three had Hodgkin's disease, three had lymphoma of the reticuloendothelial cell type, three had a preponderance of lymphoblasts, but did not fit the lymphosarcoma or leukemia groups, and one had a polymorphous infiltrate similar to that seen in the original skin biopsy.[3] In some instances practically all structures and organs were involved.

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Certainly mycosis fungoides is a clinical entity, but it may not be a pathologic one.[6]

Once proof of the disease has been obtained, therapy consists of the use of roentgen rays when the lesions are few or of the d'emblée type. Frequently small doses of roentgen rays will cause long periods of involution of the lesions. When the disease is generalized, chemotherapeutic agents such as nitrogen mustard, cytotoxin, and chlorambucil are required. The former has had the largest trial since it is an older drug. In far advanced disease, results with chemotherapeutic agents are often less effective than those obtained with roentgen ray therapy. At times, involution of the eruption can be obtained by chemotherapeutic agents and recurrences controlled by roentgen ray therapy, but as in all lymphomas, the disease is ultimately fatal.

*Basal cell epithelioma.*—There is a considerable difference of opinion regarding the origination of this neoplasm. Since it occurs anywhere on the body surface except the palms, soles, and mucous membranes, it seems unlikely that it could originate in the basal cell layer or from embryonal rests of sweat glands. Evidence suggests that these epitheliomas arise from embryonal rests of cells related to the pilosebaceous apparatus, and as these tumors grow, the differentiation of the cells will be toward sebaceous glands, apocrine glands, or hair structures.

There are a few reports of metastasis from basal cell epitheliomas, but evidence is too scanty to war-

rant acceptance of this concept. It is more likely that diagnosis of the primary lesion or evidence of metastasis was incorrect.

Basal cell epitheliomas occur in three forms: (1) noduloulcerative, (2) pigmented, and (3) plaque (morphea-like). The first-named type is the most common; in early stages it is an opalescent nodule, 1 or 2 mm. in diameter, with a telangiectatic surface. It may arise close to or from a pilosebaceous duct; it grows larger and more nodular, and may bleed after slight trauma. Often when the bleeding has ceased, a crust forms which, when removed, shows an ulcer. If neglected, basal cell epitheliomas will enlarge; develop raised borders and deep ulceration, and destroy skin, periosteum, and bone.

The pigmented basal cell epithelioma is similar to the noduloulcerative type except that the degree of pigmentation is considerable, and the lesion may be mistaken for a malignant melanoma. Nodularity, telangiectasia, and tendency to ulcerate are the same as in basal cell epitheliomas. Although the lesion's pigment is melanin, its cells are not nevus cells; therefore, its prognosis is the same as that for the noduloulcerative lesion.

The plaque type of morphea-like basal cell epithelioma is frequently not recognized as a neoplasm. It is flat and slightly firm, of yellowish or ivory color, and resembles a patch of localized scleroderma. Scarring without ulceration may occur early, especially around the central area of the plaque. If the lesion is observed tangentially, a fine, threadlike border can be seen approximating the active border. Lesions may attain considerable size before they are recognized; sometimes recognition is delayed until ulceration.

Any one of the following methods of treatment, thoroughly performed in an early or moderately early lesion, will give an excellent cure rate. The most common is to destroy the lesions by curettement, followed by either hot point or electrocautery. Since lesions are soft, small curettes are generally preferred by experienced physicians, who can follow small strands of tumor cells into otherwise normal tissue.

Excision is satisfactory for the first two groups of basal cell epitheliomas, but must be done with care in plaque type basal cell epithelioma, since its borders are ill-defined. Excision, followed by grafting, on areas such as the nose is hazardous. If some of the epithelioma is left and covered by grafted tissue, it will grow and spread throughout the grafted area, requiring later extensive destructive treatment.

Roentgen ray and, to a lesser extent, radium are frequently and satisfactorily used. The former is given by shielding the lesion with lead, leaving a border of 2 to 4 mm. and giving 100 to 150 r daily or 200 to 250 r every other day until a total dose of 4,000, 4,500 or 5,000 r is administered. By using roentgen rays in small divided doses, the skin damage from treatment is less. Radium is used by embedding the seeds or by use of the radium plaque, but control of the radiation by radium is less exact than by roentgen ray.

It is not wise to combine therapy such as curettage and cautery and roentgen ray in the treatment of a lesion, since if there is recurrence, the physical modality previously used (such as roentgen-ray and/or radium) cannot be used to destroy the recurrence. Further destructive surgical measures are necessitated.

In basal cell epitheliomas which despite many forms of treatment have spread to wide areas and extended into structures below the skin, mutilating surgery can be prevented and cures frequently obtained by the use of the Mohs technique. This consists of the application of a cauterizing paste; in 24 hours the paste is removed by scalpel, and areas of malignancy are stained and identified. The paste is reapplied and dissection of the coagulated tissue is repeated, identifying the course of the neoplastic spread, and following it until all neoplastic cells have been removed. The procedure is painstaking, is time consuming, and requires a surgical team and technician. Nevertheless, in the author's experiences it has obviated the need for many mutilating operations.[5]

*Squamous cell carcinoma (prickle cell epithelioma).*—This tumor often grows rapidly and frequently occurs as a nodule in which a central ulcer, an indurated raised border, and some surrounding redness soon develops. This type of lesion is more malignant when it occurs in young people.

Carcinomas arising from actinic and senile keratoses, or resulting from secondary causes such as exposure to tar, ingestion of arsenic, or ionizable radiation, frequently have a horny center; sometimes a fairly large horn extends from the center of the lesion. The bottom of the lesion is rounded, and growth is often much slower than in the previously described tumors. Although squamous cell carcinomas can occur in any area of the skin and mucous membrane, they are most common on the face, ears, lower lip, and dorsa of the hands and arms. Exophytic lesions, or those that grow outward from the site of origin, are much less likely to metastasize early than are those that tend to ulcerate early and grow deep into the tissue. Metastasis is by the lymphatic vessels; hence, examination of the regional lymph nodes should always be part of examination when carcinoma of the squamous cell type is suspected.

Biopsy or excision is essential so that the nature of the lesion can be proved by pathologic examination. In lesions in which growth is slow and in which perhaps there has been earlier senile kera-

tosis, destruction can be accomplished by excision, electrodesiccation, or roentgen radiation. These same modalities may be used in more rapidly growing squamous carcinomas in the absence of any clinical manifestation of regional node involvement. In the latter instance the primary lesion must be treated either by excision or radiation and regional gland dissection after the primary lesion has been ablated. The total amount of roentgen radiation used in a squamous cell carcinoma averages 1,000-1,500 r more than that used in basal cell carcinoma. Given in divided doses, it is about 5,000-6,000 r.

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# "No Average Child", Says He

There is no such thing as a flesh and blood *average* child in every respect.

So writes W. Alexander Hunter, professor of psychology and education at Pan American College, Edinburg, Texas, in a recent article in the *Texas Outlook*.

No single pattern of behavior or set of characteristics will apply to all children; each must be judged in the light of his own individuality, the educator states.

The term *normal* is used often to refer only to intellectual capacity. A child may be above average in brightness, however, and yet be abnormal in some other respect.

If a child does not differ greatly from the average in his age group, he should be thought of as normal with regard to the trait that is being investigated, the author believes. For example, a typical ten-year-old boy from an average home would be expected to have the following statistics:

School grade level, fifth; I.Q., 100; height, 53 inches; weight, 65.9 pounds, and shoe size, 4½.

A child may deviate from these characteristics slightly, yet be normal. Another boy from another typical home, for example, might be in the fourth or sixth grade, have an I.Q. between 90 and 110, be 50 to 60 inches tall, weight 60 to 70 pounds, wear size 3, 4, 5, 6, or even 7 shoes and still be normal.

In all cases, the author states, every child must be considered in terms of his particular heredity and his environment, that is, his bone structure, his innate abilities, his diet, his family's socioeconomic level, characteristics of his parents, and similar factors.

# Characteristics of Choroidal Melanoma

William H. Havener, M.D.

ALTHOUGH WELL-DEVELOPED intraocular melanoma has a pathognomonic appearance, the rarity of the neoplasm prevents most ophthalmologists from becoming familiar with its characteristics. Objective features which are most helpful in diagnosis will be presented in this discussion.

## Characteristics

*Elevation and Shape.*—All recognizable melanomas are elevated. Most patients are not aware of symptoms until the melanoma is sizable unless it arises in the macula. Melanomas are usually smoothly rounded, globular masses. Often they arise from a gently sloping base. Usually the eye contains only a single rounded mass, but sometimes an extensive melanoma appears to be composed of several large, coalescent nodules. The physician often can more easily recognize a large melanoma by sighting it over a flashlight into the dilated pupil than by using an ophthalmoscope. Nothing but a large choroidal separation even remotely resembles the solid, round mass seen in this manner.

*Color and Texture.*—Large melanomas are usually light red-gray, or brown. A large melanoma as dark as a choroidal detachment is rare. Smaller melanomas which have not yet broken through the retinal pigment layer may be extremely dark. For a similar reason, the sloping base sometimes seen around the periphery of a melanoma is characteristically much darker.

The surface of a melanoma is irregularly pigmented with clumps or granules of pigment of varying size. Melanomas do not break through the retina, and the retinal vessels therefore are seen in their normal distribution coursing over the top of the tumor mass. The author has not seen anastomoses between the retinal vessels and the blood supply of a melanoma. Existence of such retinochoroidal anastomoses is characteristic of destructive chorioretinal inflammation, which most often dates back to intrauterine inflammation preceding the development of retinal vascularization. One of the most characteristic features of a melanoma, and one without which the author does not like to make positive diagnosis, is the large sinusoidal type of vascularization coursing through the substance of the tumor. These sinusoids resemble normal large choroidal vessels, but tend to be more tortuous. Sinusoids which lie deep within the melanoma are not as readily seen by direct as by indirect illumination. They are easily viewed from adjacent to a portion of the tumor which is illuminated by a brilliant slit lamp beam. The indirect ophthalmoscope, turned up to high intensity, reveals typical sinusoidal vessels which may have been invisible to the ordinary direct ophthalmoscope. These vessels exist in almost all large melanomas, and ordinarily are not seen within inflammatory or degenerative masses. If a melanoma extends as far forward as the ora serrata and displaces it inward, the typical scalloped outline of the ora may be recognized with the ophthalmoscope.

Malignant melanomas produce dopa-oxidase, an enzyme necessary for the development of melanin pigment. Diffusion of this enzyme throughout the eye may cause darkening of normal cells, as well as of the malignant cells. The possibility of a mela-

**Characteristic features of the rarely seen malignant choroidal melanoma include typical rounded elevation, dark mottled surface sinusoids and deeper sinusoids, association with retinal detachment, and surface extensions or vascularization. Sometimes glaucoma and hemorrhage are found. All of these characteristics are not necessarily present in all cases.**

noma within an eye which has a darker iris should be considered, since inflammation usually results in depigmentation. Siderosis and hemosiderosis are other possible causes of the darkening iris.

*Retinal Detachment.*—A transudative retinal detachment commonly occurs in association with a malignant melanoma. The detachment may be on or adjacent to the tumor, or some distance away if the fluid seeps downward by gravity. The subretinal fluid in a case of neoplastic detachment usually possesses amazing mobility, and shifts immediately to the part of the eye which is lowest as the patient changes positions. This does not happen in the usual case of idiopathic retinal detachment. This phenomenon may occur because of a higher specific gravity of the protein-rich transudate, whereas the subretinal fluid in an idiopathic detachment has a density more nearly equal to that of the contents of the vitreous cavity.

Often, macular detachment produces the symptoms which bring the patient to the physician for consultation. Sometimes it is difficult to understand why vision is as low as 20/200 when the macula shows only slight striation, the melanoma is far distant, and the detachment is in the inferior periphery. Examination of the patient in horizontal position reveals that this reduced vision occurs when the fluid shifts to the dependently situated posterior pole and causes a higher detachment of the macula.

The appearance of detached retina is the same whether it is idiopathic or caused by a melanoma. In both cases, the retina is a translucent, pale gray membrane which billows and folds with movement of the eye. Multiple cells within the vitreous are commonly seen in detachments of idiopathic, neoplastic, or inflammatory origin. Presence or absence of a retinal tear is not a reliable differential point. Traction from tumor growth may rarely tear a thin cystic retina, or absence of a hole may only mean it is too small and peripheral to be readily detected. Idiopathic retinal detachment is suggested by associated myopic or senile degenerative changes or by a history of previous trauma. A ballooning idiopathic retinal detachment will never return to a normal level between the elevation and the ora serrata unless an inflammatory adhesion limits the detachment. Therefore, if a highly elevated and circumscribed lesion is completely surrounded by attached retina, specifically including the far periphery, it may be concluded that the lesion is not an idiopathic retinal detachment. Obviously the differentiation of idiopathic and neoplastic retinal detachments is of clinical importance. Enucleation of the eye in the former case is a tragedy; diathermy in the latter may facilitate extrabulbar extension and metastases.

Fortunately, the modern brilliant indirect ophthalmoscope has eliminated this problem of differential diagnosis. Providing that the media are clear and the pupil can be dilated, any melanoma large enough to cause retinal detachment may be identified easily by use of the indirect ophthalmoscope. The underlying melanoma is smoother, darker, and more solid in appearance than is idiopathic detachment.

Furthermore, the melanoma is immobile, and contains visible large sinusoids within its substance. The slit lamp beam differentiates an underlying mass from the translucent fluid of an idiopathic

detachment. The time-honored custom of transilluminating all detachments is unreliable and a waste of time, and may safely be discarded by ophthalmologists who are familiar with indirect ophthalmoscopy.

In the past the author believed falsely that a limited detachment overlying or adjacent to a pigmented and elevated macular lesion indicated melanoma and not senile degeneration. Circumscribed retinal detachments at least as large as three disc diameters across may be caused by senile macular degeneration.

*Surface Manifestations.*—A uveal melanoma may extend through the scleral foramina which normally transmit vessels or nerves. Most readily visible are the extensions through the anterior openings which transmit Axenfeld's nerve loops. Ordinarily these are recognizably elevated and darkly pigmented. The pigment spots normally associated with the Axenfeld's loop areas in brunets or Negroes are flat and never extensive. Extensions from an intraocular melanoma are intimately connected with the sclera, and are separated from overlying conjunctiva by the intervening Tenon's capsule. The intraocular parent melanoma is always visible beneath the external nodule. Absence of the intraocular portion makes the diagnosis of choroidal melanoma doubtful. The author and his co-workers have seen two cases in which histologic study proved that the external pigmented nodule was benign.

At the time of enucleation, care should be taken to avoid breaking into extrabulbar extensions of a malignant melanoma, which could disseminate neoplastic cells throughout the orbit. Posterior extensions are less readily observed, but sometimes they may be seen if the patient directs his gaze to the side. Thus the melanoma-containing portion of the globe is brought as far forward as possible. Such posterior lesions are less conspicuous and are more likely to be injured at surgery.

Occasionally staphylomas closely resemble melanoma. Nevertheless, they are easily differentiated by the ease with which transillumination glows through their thin walls, or by the absence of an internal tumor.

Conspicuously dilated surface vessels may exist in the sector of an eye which is over a melanoma. These vessels are dilated because of greater than normal amount of blood flowing through the tumor. Characteristically, only the larger vessels are seen and capillary engorgement is absent. This characteristic permits differentiation from the red eye of infection or allergy, which always shows capillary dilation. Carotid-cavernous fistulas and orbital angiomas are other conditions which cause dilation of the larger surface vessels only.

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*Glaucoma.*—In most eyes which are enucleated for melanoma intraocular pressure is not elevated. Aqueous outflow may be obstructed by neoplastic cells or by cells arising from secondary inflammation. Rarely a large and rapidly growing melanoma will block the angle by anterior displacement of the lens-iris diaphragm. In most cases this is a secondary glaucoma and should not be confused with primary glaucoma. The incidence of unsuspected melanoma is approximately 4 per cent in glaucomatous, blind, painful eyes in which opacities obscure ophthalmoscopic examination. Therefore, prophylactic indications, as well as cosmetic indications exist for enucleation of such eyes. Inflammatory and destructive sequelae of melanoma also may cause hypotony or phthisis bulbi.

*Hemorrhage.*—Necrotic tissue and vessel damage within a melanoma may result in spontaneous hemorrhage. The majority of melanomas, even large melanomas, do not produce hemorrhages. Occasionally a small melanoma causes choroidal or subretinal hemorrhage. It is, therefore, erroneous to believe that hemorrhages in the vicinity of a small pigmented lesion necessarily establish the diagnosis as inflammatory or degenerative, and not neoplastic, although diagnosis of neoplasm is more usual. Massive spontaneous vitreous hemorrhage resulting from a melanoma is rare. The author and his co-workers have recognized only one such case.

Choroidal hemorrhages may closely resemble melanoma. If covered by pigment epithelium of average density, choroidal hemorrhages will be black or dark rather than red. Hemorrhages originating from inflammatory or degenerative disease may be slowly progressive, simulating the growth of a neoplasm. Most hemorrhages of any size are recognizably elevated above the normal retinal level; however, this elevation is usually diffuse, and is not nearly as high as the usual melanoma when it is first seen.

## Differentiation of Nevi

By far, the commonest pigment alteration of the choroid is the benign nevus. Sometimes the nevi

are alarming and require differential diagnosis from malignant melanoma.

Choroidal nevi occur in slightly more than 1 per cent of the population. Good mydriasis aids their detection. Size varies from one-fourth disc diameter (smaller ones undoubtedly occur but are not readily recognized with the ophthalmoscope) to more than four disc diameters. They are usually roughly circular or oval, and sometimes they have pseudopod-like extensions. Edges are definite, but not sharp because of overlying tissue. Absence of irregular pigmentary disturbances at their margins aids in differentiation from inflammatory disease. Color and distinctness depends upon the density of the overlying retinal pigmentation, whether the pigmentation is albinic, Negroid, or intermediate. Choroidal nevi are usually a homogenous slate gray which obscures the choroidal vascular pattern. Jet black, flat, sharply circumscribed lesions are usually congenital retinal pigmentations. Frequently drüsen are observed over the nevus. Presence of the drüsen may be of diagnostic significance inasmuch as they establish beyond question that the specific lesion has existed for a considerable length of time. Interference with choriocapillaris nutrition of the outer retinal layers (same mechanism which induces drüsen formation?) may result in a relative scotoma. Such scotomas frequently are detected with a 1/1000 white test object. This deserves emphasis because of the erroneous popular belief that presence of a scotoma indicates neoplasm. Benign nevi, however, do not cause absolute scotoma or progressive field defects. They are not elevated, and do not induce neovascularization, edema, exudates, or hemorrhage. Choroidal nevi are believed to be of developmental origin.

By means of the previously described characteristics, a benign nevus ordinarily may be recognized with confidence. Should doubt exist, a careful drawing, with emphasis on the exact relationship to vessel branching or other landmarks, should be made. Serial fundus photography, if available, is an even better way of detecting possible growth. Serial visual fields are also helpful. Malignant melanomas often will grow obviously within several weeks. Unfortunately, there is no guarantee that a benign nevus will not undergo malignant transformation. The author and his co-workers have observed two such cases. Furthermore, histologic examination may show nevus cells at the base of a malignant melanoma.

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## *Cell Movement Likened to Watch*

In a manner similar to that of a small boy driven by curiosity to take a watch apart to see how it works, the physiologist has tried to take apart the muscle cell. One may take something apart by small bits or completely. Physiologists refer to partly or wholly disintegrated muscle as a simplified system.

The original simplified system is the one devised around 1949 by Albert Szent-Gyorgyi, now at the Institute for Muscle Research in Woods Hole, Mass. He tied a freshly dissected muscle cell of rabbit to a frame at its natural length, then soaked it overnight in a cold solution of glycerine. The muscle cell is killed by this treatment, and many of its components are leached out. If the dead muscle cell is warmed to room temperature in a dilute salt solution and exposed to the action of adenosine triphosphate (ATP), the dead cell contracts. ATP is the same substance that provides the energy for many cellular functions.

This aspect of cell movement was described in a recent issue of *Scientific American.*

# NEWS

## Blue Cross of Texas Undertakes Portion Of Vendor's Medical Care Program Jan. 1

Jan. 1, 1962, is a significant date for approximately 221,000 Texas Old Age Assistance recipients who will become eligible for certain types of medical care within the provisions of the Kerr-Mills Act.

Mr. John H. Winters, Commissioner of the State Department of Public Welfare, emphasized that the program is state-operated and controlled even though federal funds are provided. The federal act was implemented in Texas by the Medical Assistance Act (S.B. 79, 57th Texas Legislature.)

The program is twofold and includes funds for (1) inpatient care in the hospital, including medical and surgical services performed by physicians, and (2) nursing home care. Group Hospital Service, Inc. (Blue Cross of Texas) will underwrite the first portion of the program. The State Department of Public Welfare will administer the second portion, the nursing home phase, which is not an insured program.

Familiarly known as the vendor's medical care phase of the Kerr-Mills Act, the program as authorized by the 57th Texas Legislature will receive 75.79 per cent federal money and 24.21 per cent state money. State funds total $13,320,000 for the period from Jan. 1, 1962, through Aug. 20, 1963. A total of $12 monthly per individual on the Old Age Assistance rolls will be provided for the administration of the program.

As authorized by the Legislature, the Texas State Department of Public Welfare is chief administrator of the program. The Department, however, was permitted to determine how the program is to be administered. After extensive investigations, the Department accepted a plan submitted by Blue Cross of Texas as the "most practical and efficient method of handling the hospital-doctor phase of the program."

Within the provisions of the Kerr-Mills Act, the state will pay Blue Cross of Texas for the monthly health insurance premiums for each person on the Old Age Assistance rolls. The premiums have been set at $8.68 per month per individual. Blue Cross will conduct the program similarly to its regular insurance program, that is, within certain limitations, Blue Cross will make available to the patient services of the hospital.

### Hospitals Maintain Forms

Although individual physicians must certify patients who are to receive benefits from the program, physicians will not be required to maintain much additional paper work. Instead, hospitals will be responsible for obtaining certification of a patient's eligibility from the State Department of Public Welfare. The forms, which are to be kept normally by the hospital and not by the individual physician, contain a brief clause for the physician's certification that the patient is acutely in need of medical care provided for under the provisions of the program. The physician may request a supply of these forms (Form 64, "Doctor's Certification for Admission to Hospital for Recipient of Old Age Assistance"). At the end of 15 days hospitalization, the doctor must recertify the patient if continued care is necessary. Space for recertification is also provided on Form 64. Again, the hospital must secure certification from the Department that the patient is still entitled to Old Age Assistance. Blue Cross billing forms for physicians will continue to be the same as those now being used.

In January, the Department will mail each Old

Age Assistance recipient an IBM card from Blue Cross containing his name and a number assigned to him by the State Department of Public Welfare. In case the patient requires medical care, he is to show this card to the physician and to the hospital. The fact that the recipient-patient has one of the IBM cards does not mean necessarily that he is covered at the moment, since later he may have been denied eligibility for an Old Age Assistance grant. Should he lose the certificate he can obtain his case number from other forms provided by the Department. In addition, hospitals are being instructed to refer the patient's name to the appropriate local welfare office for certification.

### Summary of Benefits

*Hospitalization.*—(a) Up to $10 per day for bed and board, plus all other hospital services required during the first 15 days of hospital confinement, (b) up to $5 per day for bed and board, plus one-half of the hospital's charges for all other services required for the remainder of a period of hospital confinement, (c) the total charge of the hospital in accident and surgical cases not requiring bed-patient care, limited to services rendered within 24 hours of the accident or on the day of surgery. (Period of hospital confinement means a single hospital stay or two or more stays not separated by 90 days.)

*Medical-Surgical.*—(Allowances on the fees charged by physicians) (a) For surgical procedures, as scheduled in the contract, ranging from $5 to $200, (b) for anesthesia, $5 plus up to 15 per cent of the surgical allowance, (c) for hospital attendance in nonsurgical cases, $3 per visit (one visit per day) during the first 15 days of a period of hospital confinement; $1.50 per day (one visit per day) thereafter during the same period of hospital confinement, (d) for radiation, $5 per treatment of a malignancy, $3 per treatment of a non-malignant disease, subject to maximums as stated in the contract.

*Not Included.*—(a) The cost of blood or plasma, (b) care in a governmental hospital, (c) care of patients with tuberculosis or mental disease, (d) Veterans Administration cases, (e) conditions covered under workmen's compensation, (f) care in an institution or section of a hospital devoted to convalescent or custodial cases, (g) ambulance service, (h) dental care, (i) benefits duplicating those provided under different coverage issued to the patient by Group Hospital Service, Inc.

Physicians may obtain further information on coverage available under the program from the office of the State Department of Public Welfare.

## *Mutation Theory Supports Trauma-Cancer Relationship*

By application of the mutation theory of cancer, Dr. R. Harrison Rigdon of the University of Texas Medical Branch has given new support to the argument that a single bodily injury may cause cancer.

Dr. Rigdon, professor of pathology, presented his theory in a paper, "Trauma and Cancer, a Relationship Based Upon Cell Mutation", at the Southern Medical Association meeting Nov. 7 in Dallas. He cited two clinical instances in which, he believes, patients suffered severe bruises and then developed fatal cancer within a relatively short time as a direct result of the injuries.

The basis for Dr. Rigdon's theory is that a single mechanical injury such as a severe blow can cause a mutation or alteration in the genetic structure of cells with consequent production of cancerous growth. He noted that the statistical correlation between trauma and cancer is low. However, Dr. Rigdon emphasized, the correlation of skin cancer and exposure to ultra-violet rays also is low when the number of persons exposed to sunlight and the number who develop skin cancer is considered statistically.

### Dr. Hansen Honored by Permanent Lecture Series

A permanent series of annual lectures at the University of Texas Medical Branch has been named in honor of Dr. Arild E. Hansen, former professor and chairman of the Department of Pediatrics at the Medical Branch.

The first lecture, on the role of linoleic acid in human nutrition, was given Nov. 10 by Dr. Hansen, who is now director of research at the Bruce Lyon Memorial Research Laboratory, Children's Hospital of the East Bay, Oakland, Calif. The lectureship is being endowed by former students of Dr. Hansen.

### Austin State Hospital Is Host for Seminar

The Austin State School was host for a three-day seminar, Dec. 4-6, on in-service education of attendants in residential schools for the mentally retarded.

The seminar was part of a five year project on attendant training sponsored by the Southern Regional Education Board. Among the program participants were Raymond Vowell, executive director of the board for Texas State Hospitals and Special Schools, and William Sloan, Ph.D., superintendent of the Austin State School.

# Texas Resolutions Favorably Received By AMA House of Delegates

The significant influence of the individual physician, county medical society, and state association in formulating policies of the American Medical Association was reflected once again in proceedings of the House of Delegates of the American Medical Association at the 1961 Clinical Meeting Nov. 27-30 in Denver.

All five resolutions introduced by the Texas delegates were approved by the House of Delegates, and now represent official policy of the AMA. The Texas resolutions covered such diverse topics as income tax deductions for the aged, polio vaccines, states' rights in the peaceful uses of atomic energy, military training programs for reserve medical officers, and recognition of the threat of the King-Anderson bill to the practice of medicine.

As evidence of the prominent roles which they played in the deliberation of the AMA House, Texas' eight delegates presented five of the 38 resolutions which were introduced.

1. *Support of Income Tax Deductions for Medical Care for the Aged.* The AMA House of Delegates approved a Texas resolution calling for the endorsement of legislation that embraces income tax deductions for the aged as a "practical, effective means in helping meet the costs of medical care". As a result, the AMA will support H.R. 7756 (Rep. Durward Hall of Missouri) which would help alleviate the problems of financing medical care for the aged, and would assist those 65 years of age and older in meeting their own responsibilities.

This legislation would amend the Internal Revenue Code to permit a taxpayer to deduct in full the amounts paid for medical and hospital care of any person who has attained the age of 65, regardless of whether the aged individual receives the majority of his support from the taxpayer, as is presently required. H. R. 7756 would allow tax exemptions for all drugs and medicines for the aged and would provide additional exemptions for catastrophic medical care expenses. The objective of the legislation is to assist the aged and their families to meet their own obligations without relying upon government programs which are federally financed and controlled.

2. *Polio Vaccines.* Approving a Texas resolution, the AMA House of Delegates decreed that the Salk vaccine should be the vaccine of choice for routine poliomyelitis immunization, until all three types of oral vaccine are available. The resolution gives each county medical society the responsibility for determining the type of program which is to be used in each community for administering the vaccine.

The resolution stated that county and state societies should encourage, stimulate, and participate in surveys to determine the percentage of individuals in each community who have undergone immunizing procedures. Each county medical society should determine, on the basis of results of the surveys, the type of vaccine and the most effective programs which will be of greatest benefit to the public.

The Texas resolution pointed out that the trivalent, formalin killed-polio vaccine (Salk) has proved effective in preventing paralytic poliomyelitis. The oral polio vaccine (Sabin type) currently is available for only Type I and Type II. Type III is expected to be licensed in the future. Types I and II oral vaccines can immunize only against Types I and II polio, respectively, and are recommended for use only in epidemics or potential epidemics. They are not available for widespread use in the absence of an actual or threatened epidemic.

3. *Support of Interests and Responsibility of the States in the Peaceful Uses of Atomic Energy.* The House of Delegates adopted a Texas resolution which placed the AMA on record as approving the intent of Congress to decentralize atomic energy control in as many areas as possible and to turn over increasing responsibility to the states in the regulation of by-product, source, and special nuclear materials.

The AMA urged the Atomic Energy Commission, in the implementation of decentralizing programs, to promulgate regulations which would (a) stimulate the development of maximal competency within states to handle this responsibility, (b) avoid unnecessarily complex or duplicating regulatory systems which impair utilization of these materials, and (c) encourage a simplified control system over by-products which will stimulate new and constructive applications of nuclear energy. The AMA also urged the Atomic Energy Commission not to retain fed-

eral control over the transfer of devices utilizing by-product, source, and special nuclear materials and the disposal of all radioactive waste materials.

The resolution, formulated originally by the Texas Medical Association's Committee on Nuclear Medicine, was prompted by the fact that the AEC had asked for public comments as to whether it should retain authority over land burial of atomic wastes and over the transfer of devices containing nuclear materials. The AEC asked for these comments despite the fact that Congress recognized the interests of the states in the peaceful uses of atomic energy by enacting Public Law 86-373 two years ago. The law promotes an orderly regulatory pattern between AEC and state governments with respect to nuclear development and the use and regulation of by-product, source, and special nuclear materials. It also establishes procedures and criteria for the discontinuance of certain AEC regulatory responsibilities with respect to these materials and their subsequent assumption by the states.

4. *Six-Month Military Training Program for Reserve Medical Officers.* Approving in principle a Texas resolution, the AMA House of Delegates voted to recommend to the Secretary of Defense that he consider the advisability of developing a program for the training of reserve medical officers to meet current and projected national needs. The military training plan would be similar to the six month program utilized at present to train non-medical, technical reserve officers with the objective of insuring an adequate component to meet national emergencies. These officers have an opportunity to serve on active duty in the armed forces for six months, then must undertake a training period of seven years as a member of a reserve unit. Physicians have no similar program opportunity at present. The current military "build-up" has necessitated draft calls for physicians to serve two year terms of active military service.

5. *Recognition of Legislative Threat to Medicine.* The AMA House of Delegates approved the intent of a resolution submitted by Dr. T. C. Terrell, Fort Worth, and went on record asking state and county medical societies to recognize the threat of the King-Anderson bill, and to prepare for any eventuality by continuing to oppose any federal plan which endeavors to impose a sub-standard system of medical care on the American public. The resolution emphasized that the Federal Administration is continuing to push for the King-Anderson bill which, if enacted, would result in a government program of medical care for the American people.

Dr. Terrell's original resolution called for the House of Delegates to recognize and implement the present policy of the AMA in opposition to legislation of the King-Anderson type. At the 1961 Annual Meeting in New York, the AMA adopted a statement by Dr. Louis H. Bauer of New York City, a past president, which stated: "The House of Delegates invites attention to the fact that the medical profession is the only group which can render medical care under any system and that the medical profession is best qualified to determine how the best medical care can be delivered.

"The House of Delegats believes that the medical profession will see to it that every person receives the best available medical care regardless of his ability to pay; and it further believes that the profession will render that care according to the system it believes is in the public interest; and that it will not be a willing party to implementing any system which it believes to be detrimental to the public welfare."

Texas delegates who participated in the Denver meeting were Drs. J. B. Copeland, San Antonio; M. O. Rouse, Dallas; E. V. Hall, Fort Worth; John K. Glen, Houston; Troy A. Shafer, Harlingen; T. C. Terrell, Fort Worth; J. C. Terrell, Stephenville; and G. W. Cleveland, Austin.

## Texans Speak at Radiological Meeting

Nine Texas speakers participated in programs of the 47th annual meeting of the Radiological Society of North America which was held Nov. 26-Dec. 1 in Chicago.

The Texas speakers and their subjects included Dr. Herman D. Suit, Houston; "Oxygen Effect Factors of Human Skin"; Dr. Gilbert H. Fletcher, Houston, "Correlation of Clinical Results with Explicit Calculations of Isodose Distributions in Interstitial Implantations of the Squamous-Cell Carcinomas of the Anterior Two-Thirds of the Tongue and Floor of the Mouth"; Eleanor J. MacDonald, Houston, "Method of Analysis for Evaluation of Treatment in Oropharynx Cancers"; Dr. M. H. Nathan and Dr. V. P. Collins, Houston, "Growth Rate as an Aid in Differentiating Benign from Malignant Lesions"; Marilyn Stovall and Robert J. Shalek, Ph.D., Houston, "Explicit Calculations by a Digital Computer of Isodose Distributions in Interstitial Implantations"; and Dr. John R. Williams and Dr. Frederick J. Bonte, Dallas, "Bronchial Arteriography".

# AMA House of Delegates' Actions

A variety of important subjects were acted upon by the House of Delegates at the American Medical Association's 15th clinical meeting held Nov. 26-30 in Denver. These included social security health care, relations with the American College of Surgeons, organization of the American Medical Political Action Committee, medical discipline, and poliomyelitis vaccine.

Dr. Leonard W. Larson of Bismarck, N. D., AMA president, told delegates at the opening session of the House that proposals to incorporate health care benefits into the Social Security system "would certainly represent the first major, irreversible step toward the complete socialization of medical care." The compelling issue is socialization versus voluntarism—or compulsion versus freedom of choice. Dr. Larson predicted that courage, determination, and the will to win on the part of physicians will bring the defeat of the King-Anderson bill in Congress next year.

Dr. Larson emphasized that the AMA will continue to give primary attention to implementing the Kerr-Mills Act in the states, promoting voluntary health insurance and prepayment plans designed for the aged, and up-grading nursing homes. The House gave enthusiastic approval to his address. It took several actions reaffirming strong support for the Kerr-Mills program to aid the needy and near-needy aged, and urged a concerted, determined fight against social security health care proposals in Congress. The House advised all state and country medical societies to recognize the impending threat and to prepare now for any eventuality by continuing to oppose any scheme which tries to impose a substandard system of medical care on the American people.

## American College of Surgeons

Members of the House agreed with the intent of five resolutions which expressed strong dissatisfaction over recent statements by a spokesman for the American College of Surgeons that 50 per cent of surgery is being performed by those not fully qualified to do such work. The House also approved a Board of Trustees report informing the House that arrangements have been made for a January meeting with the ACS Board of Regents to discuss that organization's recent statements and policy positions. The report expressed hope that the meeting "will lead to a unification of effort in behalf of American medicine."

The House heartily approved the purposes and objectives of the recently-organized American Medical Political Action Committee and urged all physicians, their wives, and interested friends to join AMPAC and other political action committees in their states and communities.

## Medical Discipline

Delegates received from the Council on Constitution and Bylaws a proposed amendment which would have made it possible to implement a recommendation by the Medical Disciplinary Committee approved by the House at its June, 1961, meeting. This recommendation was to change the bylaws so as to confer original jurisdiction on the Association to suspend and/or revoke the AMA membership of a physician found guilty of violating the Principles of Medical Ethics or the ethical policies of the Association, regardless of whether action has been taken against him at the local level. After considerable discussion on the floor of the House, however, the proposed amendment was referred back to the Council.

In another action on medical discipline the House approved the expanded activities of the Judicial Council, which has assumed permanent responsibility in that area.

The House adopted a resolution urging medical societies at local, county, district, or state levels throughout the United States to participate in surveys to determine the percentage of individuals in each community who have had immunizing procedures for poliomyelitis. On the basis of the results of the surveys, the resolution stated, the local medical society should determine the type of vaccine and the most effective type of program which will be of greatest benefit to the public. Until all three types of oral vaccine are available, the resolution concluded, the Salk vaccine should be the vaccine of choice for routine poliomyelitis immunization, with the choice of program for administering the vaccine to be determined on a local basis by each county medical society.

Members of the House also:

Disapproved of two proposals which would have required that resolutions be introduced 30 and 45

days, respectively, before Association meetings.

Approved a statement that physicians have an ethical obligation to participate in medical society activities and to express their opinions freely.

Reaffirmed AMA policy that it is not considered unethical for a physician to own or operate a pharmacy provided there is no exploitation of the patient.

Agreed with the Judicial Council that the physician is responsible for the control and custody of drug samples once they come into his possession, and in the high tradition of the medical profession he should not dispose of them in any way that could cause harm to others.

Commended those constituent medical societies which have moved forward in the area of human relations by eliminating membership restrictions based on race or color.

Approved a recommendation that a special House committee be appointed to investigate all facets of the operation of the Joint Commission on Accreditation of Hospitals.

Agreed with the Board's choice of Miami Beach, Fla., as the site for the 1964 Clinical Meeting.

Approved combination of the American Medical Education Foundation and the American Medical Research Foundation into the American Medical Association Education and Research Foundation, effective Jan. 1.

Contributions totaling $435,275.93 from physicians in six states were presented to the American Medical Education Foundation during the opening session on Monday.

Deferred action on a proposed study of fund raising by voluntary health agencies, pending the development of additional information by the AMA Committee on Voluntary Health Agencies.

Reaffirmed the previous policy that physicians should have the privilege of prescribing drugs by either generic or brand name.

Approved the principle of income tax deductions for medical care of the aged.

Recommended, in reviewing the Medicare Program, that all county medical societies in the area surrounding an armed forces hospital make a serious attempt to establish formal liaison with the physicians on its staff.

Endorsed the administration of indigent medical care programs developed in cooperation with local medical organizations as a legitimate activity of state and local health departments.

Urged the elimination of all "categories" in programs of assistance to the needy at the federal and state level, with all assistance provided through a single program.

Referred to the Council on Medical Service a resolution proposing the use of state and federal tax funds to provide voluntary prepayment health insurance protection for the aged. In the related action the House approved of experimentation with prepayment plans under assistance programs.

Urged more vigorous promotion of voluntary nonprofit prepayment health plans.

Urged every physician in the United States to use automobile seat belts.

Recommended, as a civil defense measure, a mass immunization program for the general public.

Suggested that the Board of Trustees continue its negotiations to develop a group disability insurance program for AMA members.

Concurred in the Board's appointment of a special committee to study the organizational status of AMA Sections, the functions of the Scientific Assembly, and existing procedures for establishing medical certifying boards.

Instructed the Council on Medical Education and Hospitals to study the present and potential contribution of the American Board of Abdominal Surgery to the advancement of the art and science of surgery and the betterment of public health, to determine whether it should be approved as a recognized examining board.

Approved and commended the objectives and program submitted by the Committee for Liaison with National Nursing Organizations.

Recommended that the Secretary of Defense consider the advisability of developing a training program for reserve medical officers.

## Dr. Owen Honored by Southern Medical Association

Dr. May Owen of Fort Worth, immediate past president of the Texas Medical Association, was among three physicians honored by the Southern Medical Association at its 55th annual meeting Nov. 6-9 in Dallas.

Dr. Owen received the SMA Research Medal for "meritorious and original research work in contributing to medical science."

Dr. Henry H. Turner of Oklahoma City, received the Seale Harris Award for important accomplishment in the broad field of metabolism, endocrinology, nutrition, or for research which contributes to a better understanding of the chemical changes occurring in disease.

Dr. George E. Burch of New Orleans received the SMA Distinguished Service Award. C. P. Loranz of Birmingham, Ala., SMA advisor and consultant, received a special award for dedicated service.

Some 4,500 members and guests from 39 states and 5 foreign countries attended the Dallas meeting. There were 102 scientific and 147 technical exhibits, illustrating latest advances in medicine, surgery,

medical specialties, pharmaceuticals, and therapeutic devices.

Dr. A. Clayton McCarty of Louisville, Ky., was elected president. Other officers are Dr. Fount Richardson of Fayetteville, Ark., president-elect; Dr. Robert D. Moreton of Fort Worth, first vice-president; Dr. Charles Max Cole of Dallas, second vice-president; Robert F. Butts of Birmingham, Ala., executive director; C. P. Loranz of Birmingham, advisor and special consultant; and Dr. R. H. Kampmeier of Nashville, Tenn., editor of the *Southern Medical Journal*.

## Southwest Medical Assembly To Convene Jan. 29-31

The 26th annual meeting of the International Medical Assembly of Southwest Texas will be held Jan. 29-31, 1962, in San Antonio.

Speakers and their subjects will be Dr. E. M. Papper, director of anesthesiology service at the Presbyterian Hospital, Columbia-Presbyterian Medical Center, New York, anesthesiology; Dr. Francis A. Ellis, chief of dermatology at Mercy Hospital and St. Joseph's Hospital, Baltimore, dermatology; Dr. H. J. M. Barnett of Toronto, internal medicine; Dr. William A. Sodeman, dean and professor of medicine, Jefferson Medical College and Medical Center, Philadelphia, internal medicine; Dr. Henry J. Tumen, chairman of the Department of Medicine, University of Pennsylvania Graduate Hospital, Philadelphia, internal medicine; Dr. Conger Williams, associate physician, Massachusetts General Hospital, Boston, internal medicine; Dr. Saul B. Gusberg, associate professor, Department of Obstetrics and Gynecology, Columbia-Presbyterian Medical Center, New York, obstetrics-gynecology; Dr. Edmund B. Spaeth, professor emeritus of ophthalmology, Graduate School, University of Pennsylvania, Philadelphia, ophthalmology; and Dr. Miles L. Lewis, Jr., instructor in otolaryngology, Tulane University School of Medicine, New Orleans, otolaryngology.

Also, Dr. Emmerich von Haam, professor and chairman, Department of Pathology, Ohio State University, Columbus, Ohio, pathology; Dr. Herman Yannet, medical director, State of Connecticut, Southbury Training School, Southbury, pediatrics; Dr. Charles A. Neumeister, clinical associate professor of surgery, Division of Proctology, Minnesota University School of Medicine, Minneapolis, proctology; Dr. E. James Anthony, professor of child psychiatry, William Greenleaf Eliot, Division of Child Psychiatry, Washington University School of Medicine, St. Louis, psychiatry; Dr. Benjamin Felson, professor and director, Department of Radiology, Cincinnati General Hospital, Cincinnati, radiology; Dr. Oliver H. Beahrs, chief of the surgical section, Mayo Clinic, Rochester, surgery; Dr. Alfred Blalock, surgeon in chief, Johns Hopkins Hospital, Baltimore, surgery; and Dr. Harris B. Shumacker, Jr., professor and chairman, Department of Surgery, Indiana University School of Medicine, Indianapolis, surgery.

Registration fee will be $20 and should be sent to 202 W. French Place, San Antonio 12.

## Survival Car II To Be Shown

In the early '50's the Liberty Mutual Insurance Company of Boston made technologic history by developing the Liberty-Cornell Survival Car, a bold prototype of an automobile designed for maximum safety of its occupants. It was shown all over the country. Many of its original constructional features have since been adopted by automobile manufacturers in their standard models. Now it is on permanent exhibit in the Smithsonian Institute, Washington, D. C.

Recently the same company brought before the public *Survival Car II* which, in contradistinction to the *Survival Car I*, is not a theoretical prototype but a modification of a standard 1960 automobile. After much work, both on testing grounds and over drawing boards, engineers arrived at a car, on the outside less revolutionary than its precursor, but on the inside showing a large number of novel features. Capsule chairs can be rotated through a full circle. New restraining gear, seat backs that prevent whiplash injuries, a collapsible steering mechanism, a small rectangular steering wheel, a completely automatic fire protection system using compressed carbon dioxide, and a new safety brake system are some of the major features.

This Survival Car II will be exhibited in Texas according to the following schedule:

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| December 27-January 1 | Dallas |
| January 2 | Tyler |
| January 3 | Garland |
| January 4 | Richardson |
| January 9 | Irving |
| January 10 | Waco |
| January 11, 12 | Dallas |
| January 21-30 | Fort Worth |
| February 1-5 | Austin |
| February 7-14 | San Antonio |
| February 16-19 | Corpus Christi |
| February 21-March 1 | Houston |

The Committee on Transportation Safety of Texas Medical Association urges all doctors to view this car and to study the principles it embodies as described in the literature they will find at the exhibit.

# Talented Faculty Is Selected For Austin Annual Session

An outstanding faculty of 30 out-of-state guest speakers will top the list of attractions for the 1962 Annual Session to be held May 13-15 in Austin.

Guest speaker participants and their fields of practice include Dr. Thomas Carlile, President, American Cancer Society, Seattle, radiology; Dr. Hugh T. Carmichael, University of Illinois College of Medicine, Chicago, psychiatry and neurology; Dr. J. A. del Regato, Penrose Cancer Hospital, Colorado Springs, radiology; Dr. Milton H. Erickson, Editor, *American Journal of Clinical Hypnosis,* Phoenix, psychiatry; Dr. Frank Glenn, New York Hospital, New York, surgery; Dr. Roy F. Goddard, Director, Department of Pediatric Research, Lovelace Foundation, Albuquerque, pediatrics; Dr. Jack Van Doren Hough, Oklahoma City, otology, laryngology, and rhinology; and Dr. Douglas E. Johnstone, University of Rochester, Rochester, N. Y., pediatrics.

Annual session registrants also will have the opportunity to hear medical papers of Dr. Ralph Jones, Jr., University of Miami School of Medicine, Miami, internal medicine; Dr. Laurance W. Kinsell, Director, Institute for Metabolic Research, Highland-Alameda County Hospital, Oakland, internal medicine; and Dr. Albert N. Lemoine, Jr., University of Kansas School of Medicine, Kansas City, ophthalmology; Dr. J. Vernon Luck, Medical Director, Orthopaedic Hospital, Los Angeles, orthopaedic surgery; Dr. Francis W. Lynch, Director, Division of Dermatology, University of Minnesota, Minneapolis, dermatology; Dr. Howard Mahorner, Clinical Professor of Surgery, Louisiana State University School of Medicine, New Orleans, surgery; Dr. J. Gordon Millichap, Mayo Clinic, Rochester, pediatric neurology; and Dr. Herbert C. Modlin, Menninger Clinic, Topeka, psychiatry.

Other speakers will include Dr. Edmund R. Novak, Johns Hopkins Medical School, Baltimore, gynecology; Dr. Joseph H. Ogura, Washington University School of Medicine, St. Louis, otolaryngology-surgery of head and neck; Dr. R. Townley Paton, New York University Medical College, New York, ophthalmology; Dr. Wiliam G. Sauer, Mayo Clinic, Rochester, Minn., gastroenterology; Walter H. Seegers, Ph.D., Wayne State University, Detroit, physiology; Dr. Waldo L. Treuting, University of Pittsburgh Graduate School of Public Health, Pittsburgh, public health; Dr. Curtis H. Tyrone, Tulane University School of Medicine, New Orleans, obstetrics and gynecology; and Dr. Carl Wasmuth, LL.B., Cleveland Clinic, Cleveland, anesthesiology.

Programs of the Association's ten scientific sections and its 23 related and specialty societies will include approximately 150 Texas Medical Association members and 50 special state guests as speakers. The array of speakers will offer a wealth of current medical information to the practicing physician. Papers from Texas essayists are being gathered by program chairmen for submission to the Council on Annual Session at its meeting January 14 in Austin.

Eidophor, the closed-circuit, large screen, color television system developed by Ciba Pharmaceutical Products, Inc., will be used to transmit some of the scientific papers. Actual patients will be used in case presentations.

Dr. Albert A. Tisdale, Chairman, Committee on General Arrangements reports that the local committee is enthusiastic in making plans for the Association's first visit to Austin for an annual session. Scientific sessions will be held in the city's newly-constructed auditorium. An impressive President's Party on Tuesday evening, May 15, has been promised by the committee and will be held in the auditorium. Alumni parties will be held on Monday evening, May 14, and fraternity parties Tuesday evening before the President's Party.

**"Your duty is to decide if the doctor is guilty of malpractice, not to recommend a better treatment."**

The Memorial Services, to be held Sunday, May 13, are being planned by Dr. Sidney W. Bohls of Austin and Auxiliary representatives, Mrs. James A. Hallmark of Fort Worth and Mrs. Sidney W. Bohls of Austin. Various sports events, including golf, water skiing, and boating, are planned.

√Reservations are being honored by Austin hotels and motels for the period of the annual session. The Driskill and Stephen F. Austin have been designated jointly as headquarters hotels for the Association, and the Commodore Perry Hotel has been named Auxiliary headquarters. Requests for accommodations should be sent directly to the reader's hotel or motel of choice. First-class accommodations may be secured at the following hotels and motels:

Stephen F. Austin Hotel
Seventh and Congress Avenue

Driskill Hotel
117 East Seventh Street

Commodore Perry Hotel
Eighth and Brazos Streets

Terrace Motor Hotel
1201 South Congress

Holiday Inn Motor Hotel
6901 Interregional Highway

Ramada Inn Road Side Hotel
5656. Interregional Highway

Mount Vernon Motor Courts
4001 East Avenue

Villa Capri Motor Hotel
2360 Interregional Highway

√Blocks of rooms at the headquarters hotels will be held until February 1 for Association guest speakers, officials, and delegates. Thereafter, rooms will be available at these hotels on a first-come, first-served basis.

## Pamphlets

*What Is a Gynecologist?* is a small booklet which describes, in lay terms the need for and the services of a gynecologist. Copies may be obtained from the American College of Obstetricians and Gynecologists, 79 West Monroe, Chicago 3, Ill.

*Medicolegal Forms With Legal Analysis* has been prepared by the Law Department of the American Medical Association, and includes legal forms for 18 types of procedures. An explanation of the forms is included, along with some information about probable circumstances and the legal effect in instances where these forms are needed. Single copies of this booklet may be obtained without charge from the AMA, 535 North Dearborn, Chicago 10. A charge of $1 per copy is made to hospitals and non-physicians.

## Medifilm Report III Released for Doctors

Medifilm Report III, presenting highlights of the American Medical Association's 110th Annual Meeting in New York City, now is available to medical and allied groups.

Of special interest is a demonstration of external cardiac massage at the 1961 Gold Medal Award exhibit manned by Guy Knickerbocker and W. B. Kouwenhoven, both of Baltimore. A mannikin is used to show the actual technique of closed chest cardiac massage.

Other subjects covered are office management of varicose veins (William Foley, M.D., New York); electrical anesthesia (James H. Hardy, M.D., Jackson, Miss.); new concepts in diabetes (Howard Root, M.D., Boston); rubella in pregnancy (Frank Lock, M.D., Winston-Salem); polycystic ovaries (Robert Greenblatt, M.D., Augusta); the anxious out-patient (Jackson Smith, M.D., Chicago); allergic reactions to drugs (Giles A. Koelsche, M.D., Minneapolis, and panel members); cine coronary arteriography (F. Mason Sones, Jr., M.D., Cleveland); and part time medical mission work (Archibald Fletcher, M.D., India and Glendale, Calif.).

In conclusion, Dr. E. Vincent Askey, outgoing AMA president, speaks on the theme of the 1961 convention—teamwork in medicine.

The 33-minute, 16 mm. black and white sound film features scientific exhibits, lectures and panel discussions. Host-narrator is Jeff J. Coletti, M.D., of Old Westbury, N. Y. Interested state and county medical societies may obtain a copy of Medifilm Report III by writing to the American Medical Association, 535 North Dearborn Street, Chicago 10, Ill., or to the Audio-Visual Department, Schering Corporation, Union, N. J.

## *Black Widow Is Slipping*

Reports of two spider bite cases in Texas indicate that the black widow spider has lost her monopoly as the only insect of its kind to cause serious injury in this country.

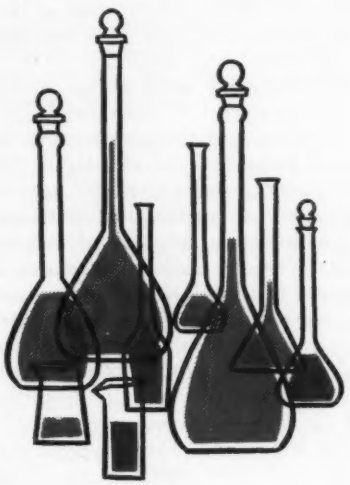
The Texas cases, as described in a recent issue of the *American Journal of Diseases of Children,* were characterized by acute hemolytic reactions, convulsions, and gangrene at the site of injury. The insect was not recovered in either case, but clinical manifestations resembled the syndrome of "viscerocutaneous arachnidism", noted as a complication in bites by the South American spider, Loxosceles laeta. Venom in the latter contains a powerful necrotoxin, which in some instances has caused hematuria or hemoglobinuria, jaundice, convulsions, and death.

# New Anticholinergic, Antibacterial Agents And Synthetic Steroid Reviewed

ROBANUL (Glycopyrrolate, A. H. Robins Co., Inc.) is a new anticholinergic agent that controls gastric secretion and hypermotility of the gastrointestinal tract. Chemically, this new compound is 1-methyl-3-pyrrolidyl-alpha-phenylcyclopentaneglycolate methobromide. A study of its chemical structure and stereochemistry shows interesting structure-activity relationships. Investigators of A. H. Robins Co. report that this medicinal agent is chemically unique and that it exerts a specific pharmacologic action on the gastrointestinal tract. Robanul exhibits a high degree of specificity of action, since within the molecule of the compound the active elements are built onto a five-membered ring that is rigid and cannot vary significantly in shape or configuration. Consequently, the active elements of the molecule are "locked" into position (sterically fixed) to fit more ideally the receptor site of its major site of action. According to biochemists, this consistency of shape and configuration may account for the specificity in action and freedom from side effects.

The development of Robanul is a major contribution because of the drug's effectiveness in producing a favorable internal healing environment for the active and painful ulcer, without unpleasant side effects. Experiences and observations have shown that though many of the anticholinergic agents, such as Atropine, are effective as antispasmodics, they are not ideal since pharmacologically they exert a multiplicity of actions. Hence, research has been directed toward agents with a more specific type of action. In animal and human studies, Robanul has demonstrated the ability "to provide within 90 minutes (and to maintain for six to ten hours) the nearly ideal pharmacologic healing conditions that mean prompt relief of ulcer pain and recovery of ulcer patients", with a minimum of side effects.

Robanul is contraindicated in obstructive conditions of the urinary bladder neck, pyloric obstruction, and gastric or duodenal ulcer causing stenosis and significant gastric retention. Furthermore, though exacerbation of glaucoma has not been noted with Robanul, the drug should be used with care in patients with known or suspected glaucoma.



GANTANOL (5-methyl-3-sulfanilamidoisoxazole, Roche Laboratories) is a new sulfonamide introduced as an antibacterial agent. It is of value in a wide range of common bacterial infections of the respiratory and urinary tract and in localized infections, as well.

Chemically, this new product is related to Gantrisin (Sulfisoxazole, Roche Laboratories) and is considered an analog of Gantrisin. Burger, in his treatise "Medicinal Chemistry",* states that Gantrisin is soluble over a wide pH range. Although its rapid excretion through the kidney produces lower blood levels than are obtainable with some other heterocyclic sulfonamides, high concentration of the soluble drug in the urine enables the compound to control urinary bacterial infections. In contrast, the newer analog, Gantanol, possesses a characteristic excretion pattern; it is reported to have an *intermediate rate of excretion*. Madribon (Sulfadimethoxine, Roche Laboratories) is characterized by slower

*Burger, A.: Medicinal Chemistry, ed. 2, New York, Interscience Publishers, 1960.

renal excretion and by more prolonged blood levels than most other sulfonamides. According to the "New and Non-Official Drugs", a single daily dose of Madribon (500 mg.-1 Gm.) is sufficient to maintain blood levels because of its relatively slow excretion. Conversely, Roche Laboratories suggest that since Gantanol has an intermediate rate of excretion, permitting a convenient dosage schedule without excessive prolongation of action, it may be administered in a dosage regimen of four tablets initially (500 mg. per tablet), followed by two tablets morning and evening. Another sulfonamide, Kynex (sulfamethoxypyridazine, Lederle) also has a slow rate of excretion and is usually administered in two tablets of 500 mg. each immediately, then one tablet every day or two tablets every other day.

Gantanol shares the safety record of the parent compound, Gantrisin; in laboratory and clinical studies it has emerged as an antibacterial with certain unique properties and outstanding characteristics of its own. Interesting results have been obtained in preliminary studies in which Gantanol was used in beta-hemolytic streptococcal infections.

DROLBAN (Dromostanolone propionate, Lilly) is a new synthetic steroid related to the androgenic hormone, testosterone. Results of clinical investigations indicate that it is at least as effective as testosterone propionate in causing objective remissions of metastatic lesions. In a total of 140 patients with advanced cancer of the breast, no serious side effects of the drug were noted. The investigators reported almost no discernible masculinizing effects with Drolban, as compared with pronounced virilization after testosterone propionate administration. Consequently, Drolban is being introduced for the treatment of patients with advanced carcinoma of the breast.

Other reports indicate that in some cases the androgens have proved successful in the treatment of breast cancers.†

Chemically, Drolban is 17-beta-hydroxy-2-alpha-methyl-5-alpha-androstane-3-one propionate, whereas, testosterone is 17-beta-hydroxy-4-androstene-3-one. The "New and Non-Official Drugs, 1961" outlines the other major androgenic pharmaceutical products with adequate descriptions of the respective physiologic functions that serve as the basis for the major therapeutic applications. The practitioner should review these monographs (pp. 674-684), and should compare the chemistry of these compounds with their biological activity. One readily notes that the "New and Non-Official Drugs" states that: "Testosterone may be tried in the palliation of advanced metastatic carcinoma of the female breast if the patient is considered beyond the help of either surgery or roentgen irradiation." In the same monograph it is emphasized that, "Testosterone is primarily useful to supply testicular hormone for the treatment of deficiency or absence of this internal secretion of the male." Consequently, it should be used to promote the development of primary and secondary sexual characteristics of patients with organic testicular failure. As one studies the literature, it is possible to conclude that testosterone exerts a multiplicity of biological actions. Drolban exhibits a relatively higher degree of specificity since it reportedly exerts lesser virilizing effects. Nevertheless, side effects sometimes include mild virilism. Edema occurs occasionally. The usual precautions pertaining to testosterone therapy apply to Drolban, although its androgenic effects are significantly less.

—JAIME N. DELGADO, Ph.D., and
LEE F. WORRELL, Ph.D.,
College of Pharmacy,
University of Texas, Austin.

†Gonzales, E. E., and Delgado, J. N.: Carcinostatic Agents, Texas J. Pharmacy 1:86 (Summer) 1960; Schwartz, H., and Delgado, J. N.: Cancer Chemotherapy Progresses Although Successes Are Few, Texas J. Med. 56:305 (April) 1960.

## EDUCATION

### Pediatrics Course Set at Galveston

A postgraduate course in pediatrics will be held Feb. 15-17, 1962, at the University of Texas Medical Branch in Galveston.

Speakers will include Dr. C. W. Daeschner, Jr., of Galveston, chairman of the Department of Pediatrics at the University of Texas Medical Branch; Dr. William A. Silverman of New York City, associate professor of clinical pediatrics at Columbia University Babies' Hospital; Dr. Russell Blattner of Houston, Chairman of the Department of Pediatrics at Baylor University College of Medicine; Dr. Benjamin M. Gasul of Chicago, director of pediatric cardiology at Cook County Children's Hospital, and Dr. William B. Kiesewetter of Pittsburgh, Pa., surgeon-in-chief of Children's Hospital at the University of Pittsburgh School of Medicine.

Fifteen hours of credit will be given members of the Texas Academy of General Practice. Tuition fee will be $15.

Additional information may be obtained from Dr. ArrNell Boelsche, chairman of the postgraduate course committee, Department of Pediatrics, University of Texas Medical Branch, Galveston.

## Community Health Projects Grant Applications Are Being Accepted

Applications from public and non-profit agencies for project grants authorized by the new Community Health Services and Facilities Act are now being accepted by the Public Health Service.

The grants are for developing, demonstrating or studying new methods of providing health services, particularly for the chronically ill and aged. The project must not only be useful to the community that conducts it, but must also show promise of yielding knowledge that will help other communities to develop similar services.

Application blanks are available from Public Health Service Staff in all regional offices of the Department of Health, Education, and Welfare.

## *Medical Research Grants Set Record at UT Branch*

Research grants to the University of Texas Medical Center in Galveston totaled $1,955,080 for the past year, a new high and a ten per cent increase over the previous year, Dr. John B. Truslow, executive dean and director, announced in the October issue of the *University of Texas Medical Center News.*

Private endowments and governmental agencies have more than doubled the gifts for research at the medical center in the past five years. Approximately one-fourth of the total grants was in the form of training grants and fellowships for students and young faculty members. Every department of the medical school and the school of nursing participated in the research grant program.

### Council for Exceptional Children

The West Central Fall Regional Conference of the Council for Exceptional Children was held in Austin recently, and Texas physicians contributed significantly to the program.

Dr. Ralph Hanna, Austin, summarized the status of cerebral palsy in Texas, and Dr. Lewis M. Helfer, San Antonio, spoke on recent research in electroencephalography. Dr. David Wade, Austin, discussed medical evaluation and diagnosis. During a forum on teamwork to aid the partially seeing child, Dr. Otto Lippmann, Austin, detailed common visual difficulties of these children.

Chairman of a panel discussion, "The Needs of Infants and Preschool Children" was Dr. Edythe P. Hershey, Austin; Dr. Murdina M. Desmond, Houston, presented "The Relationship of the Neonatal Period to Mental Retardation."

## Postgraduate Courses

*Diabetes,* Detroit and Ann Arbor, Mich., Jan. 17-19, 1962.—The committee on professional education of the American Diabetes Association is sponsor of a course on diabetes, offered in cooperation with the University of Michigan Medical School, Wayne State University College of Medicine, Wayne County Medical Society, and the Michigan Diabetes Association.

Nineteen hours of Category II credit will be given to members of the American Academy of General Practice. The fee is $40 for members of the American Diabetes Association and $75 for nonmembers. Additional data and registration forms may be obtained from the American Diabetes Association, 1 East 45th Street, New York 17.

*Infertility,* New York, February 8-10, 1962.—The New York University Medical Center and American Society for the Study of Sterility will present a symposium on infertility on Feb. 8-10, 1962. The symposium is planned for urologists, gynecologists, endocrinologists, internists, and others interested in problems of infertility. Material will be presented in the form of lectures, panels, and demonstrations. Outstanding clinicians and researchers will serve as guest faculty members. Tuition will be $75.

Further information may be obtained from the Office of the Associate Dean, New York University Postgraduate Medical School, 550 First Avenue, New York 16.

*Pre- and Postoperative Care,* Atlanta, March 20-22. Dr. Champ Lyons, professor of surgery and chairman, Department of Surgery, Medical College of Alabama, Birmingham, will conduct the course. Registrants will be encouraged to present problem cases for discussion.

Tuition fee for each session will be $50, and each course is acceptable for 18 hours credit, category I, by the American Academy of General Practice. Full information is available from Dr. Claude-Starr Wright, Director, Department of Continuing Education, Medical College of Georgia, Augusta.

### Research League Wins Award

The Texas Research League has won a special citation for distinguished research for its study of indigent medical care for Texas public assistance recipients. (See p. 676, August, 1961, issue of the *Texas State Journal of Medicine.*) The award was made at the annual conference of the Governmental Research Association in Hartford, Conn. It was the fourth time that the organization has earned a top achievement award of that group.

## Public Health Service Examinations Scheduled

Examinations for appointment of physicians as medical officers in the regular corps of the United States Public Health Service Commissioned Corps will be held February 13-15, 1962.

Appointments provide career service in clinical medicine, research, and preventive medicine-public health. Active duty as a public health service officer fulfills the selective service obligation for military duty.

Requirements are U. S. citizenship and graduation from a recognized school of medicine. For the rank of assistant surgeon, at least seven years of collegiate and professional training and appropriate experience are necessary. For senior assistant surgeon, an additional three years are needed, for a total of at least ten years. An applicant must be under 34 years of age for appointment to assistant grade, under 37 for senior assistant grade.

Application forms may be obtained by writing to the Surgeon General, United States Public Health Service (P), Washington 25, D. C. Completed application forms must be received no later than January 5, 1962.

## Southern Regional Board Gets Third Mental Health Grant

The Southern Regional Education Board has received a grant for $384,721 from the National Institute of Mental Health. It is to be used for the in-service training of attendants in institutions for the mentally retarded. Designed to cover a 5 year period, the project is financed through the third NIMH grant to be received by the southern group for in-service training programs in recent years. Others were $90,420 for training of hospital personnel and $76,310 for the training of personnel of clinics and state mental health agencies.

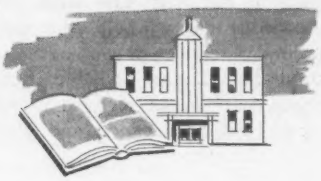
### *UT Microbiology Department Gets Graduate Training Funds*

The University of Texas Microbiology Department has received a $219,700 National Institutes of Health grant to expand its graduate training program during the 1961-1962 academic year.

The grant will be used to increase fellowships for graduate and postdoctoral studies, to employ additional staff members for the department, and to replenish permanent research equipment.

## Ob-Gyn Board Examinations

Part I written examinations of the American Board of Obstetrics and Gynecology will be held Jan. 5, 1962, in various cities of the United States, Canada, and military centers outside the continental United States. Candidates for examination in 1963 are advised that the deadline for application is July 1, 1962. Bulletins outlining requirements may be obtained from the Executive Secretary's office, 2105 Adelbert Road, Cleveland 6.



### Radiological Health Moneys Expanded

Rapid expansion in the use of nuclear energy and other sources of radiation has necessitated expansion of a program for research grants in the field of radiological health of the U. S. Department of Health, Education, and Welfare. Research proposals should contribute to the determination of the extent and character of the radiation problem, as well as the mechanisms by which radiation produces damage. For information and/or application forms, one may write Dr. Paul F. Hahn, Chief, Office of Extramural Grants, Division of Radiological Health, U. S. Public Health Service, Washington 25, D. C.

### Mental Retardation Awards Established

A program of annual international awards totaling $250,000 for achievement in the field of mental retardation has been established by the Kennedy Foundation.

Recipients will receive from $5,000 to $25,000 each for individual achievement and up to $50,000 each as support for furthering a projected or continuing program. First awards will be bestowed in early 1963 for work done during the calendar year of 1962.

The awards program was announced recently by Edward M. Kennedy, president of the Joseph P. Kennedy Jr. Memorial Foundation at the Kennedy Memorial Hospital in Brighton, Mass. Nominations for obtaining an award will be sought from institutions, organizations, and individuals working in the field of mental retardation.

## MEDICOLEGAL NOTES

# Negligence of Anesthesiologist Imputed to Surgeon

From time to time, the author of Medicolegal Notes has referred to lawsuits from jurisdictions other than Texas. This is to keep the reader apprised of legal thinking throughout the country. Some of these decisions from other jurisdictions have become part of the Texas case law when similar factual situations are presented to the Texas courts.

Because of its far reaching implications, a Pennsylvania case is discussed thoroughly to point out the dangers which were there involved and to stimulate reappraisal of the reader's own particular practices. There is no Texas case law consistent with the Pennsylvania holding.

The Supreme Court of Pennsylvania has affirmed a $75,000 judgment against a surgeon and an anesthesiologist. This award was given to a patient who lost his left arm as a result of the negligent administration of anesthesia.

The plaintiff had a diseased condition of the bursa of the right elbow. The surgeon recommended surgery for removal of the bursa, and advised general anesthesia. The patient either suggested or requested that the surgery be performed with local anesthesia.

On the day after admission to the hospital, the patient was taken to the induction room for administration of anesthesia prior to the operation. This was performed by personnel of the anesthesiology department, all of whom were employees of the hospital. The defendant anesthesiologist was chief of the department and was employed and paid by the hospital. The surgeon did not specifically instruct the anesthesiologist as to the nature of the general anesthetic.

The patient was prepared for an injection of Sodium Pentothal to be followed by general anesthesia of cyclopropane gas, ether, and oxygen. Initial preparation was by the registered nurse doing graduate work in anesthesiology. She was employed and paid by the hospital. When the patient was prepared for the injection of Sodium Pentothal, the registered nurse notified the defendant anesthesiologist. The anesthesiologist was busy at the time; therefore, he directed a resident physician, a hospital employee in the anesthesiology department, to administer Sodium Pentothal.

The resident anesthesiologist injected the needle into the patient's left arm and was giving the Sodium Pentothal when the patient cried out with pain in his left forearm and hand. The resident then either removed the needle or it slipped out. He summoned the defendant anesthesiologist; when the defendant arrived, the patient, although under the effects of Sodium Pentothal, could be aroused. The patient's left arm was blanched and had very little pulse. After some deliberation, the defendant anesthesiologist, the resident, and the registered nurse administered the general anesthesia.

The patient was then moved to the operating room for surgery on his right arm; it was successful. The defendant surgeon was not told by the defendant anesthesiologist or anyone else what had occurred in the induction room.

The defendant surgeon left the hospital without visiting the plaintiff in the recovery room. About two hours after the Sodium Pentothal injection, the defendant surgeon learned what had occurred in the induction room. He returned to the hospital, but the plaintiff's condition had worsened. Although numerous measures were taken by the defendant anesthesiologist, the surgeon, and others to counteract the effects of the Sodium Pentothal in the patient's left arm, that arm had to be amputated three days later.

Either an interarterial injection of the Sodium Pentothal had been made or extravasation had occurred. In either situation, it was evident that the injection had caused an arterial spasm. The court found that the resident anesthesiologist was clearly negligent in the case; also that the resident anesthesiologist had acted as the defendant anesthesiologist's agent and therefore that the defendant anesthesiologist was clearly responsible.

The most surprising part of the holding, however, was that the defendant *surgeon* was held liable upon the basis of his own negligence and of his responsibility as principal for the defendant anesthesiologist's negligence. Among the many facts which the court pointed out in connection with this opinion were:

The defendant surgeon could and did see that the plaintiff's left arm was extended on the intravenous board when the patient entered the operating room; the defendant surgeon assumed when the patient was presented to him in the operating room that he was ready for surgery; the defendant surgeon made no inquiry about the plaintiff's reaction to the anesthesia, although the defendant anesthesiologist and his assistants remained in the operating room and watched the left arm; the plaintiff's arm visibly deteriorated during the operation and the pulse vanished while he was in the recovery room afterward; and the defendant surgeon left the hospital without seeing the patient in the recovery room. The defendant surgeon testified during the trial that he was "the boss of the surgical end of it".

The court stated: "There is no dispute that the misuse of Sodium Pentothal caused the condition of the plaintiff's arm, which in turn caused its amputation. The jury needed no expert testimony of what the [defendant surgeon's] duty was: It was, so far as they were concerned, to do something quickly for a dangerous condition which the evidence shows was visible and urgent. Something was done, though too late . . ."

Finally, the court held that upon the basis of the evidence the defendant anesthesiologist was the agent of the defendant surgeon; consequently, it held that under the doctrine of *respondeat superior* the defendant surgeon was responsible for the defendant anesthesiologist's negligence.

In a dissenting opinion filed with the case it was stated:

"There is not a scintilla of evidence of any direct negligence on the defendant surgeon's part sufficient to subject him to liability. On the other hand, neither the defendant anesthesiologist nor the resident anesthesiologist, nor the registered nurse were acting in an agency capacity for the defendant surgeon at the time of the injection of the Sodium Pentothal."

Thus as far as the author has been able to determine, this is the first case in which an anesthesiologist's negligence has been imputed to the surgeon. He cautions again that this is not a Texas case, and likewise that its holding has not been rejected by Texas courts.

—Philip R. Overton, LL.B.

# Personals

Mrs. Herman C. Sehested, Fort Worth, died November 14. She was the wife of *Dr. Herman C. Sehested,* chairman of the Council on Annual Session.

*Dr. Edwin W. Schmidt,* Pecos, is serving as district governor of Rotary International. As governor of district 552 in New Mexico and Texas, Dr. Schmidt supervises 49 Rotary clubs in the area.

Dr. Schmidt

*Dr. Ralph Zientek* of Amarillo and Mrs. Zientek attended the annual meeting of the American Society of Clinical Pathologists and the College of American Pathologists recently in Seattle, Wash.

Three Amarillo physicians, *Dr. Ralph Citron, Dr. C. S. Hatchett,* and *Dr. W. E. Laur,* were winners in the recent Panhandle District Bridge Tournament. Dr. Citron placed second in singles, and Drs. Hatchett and Laur placed fourth in doubles.

*Dr. N. J. Ellis* of Pampa made a three-week appearance in a summer opera performance in Wheeling, W. Va.

Joe McKay, son of *Dr. and Mrs. E. D. McKay* of Amarillo, has joined the staff of a local architectural firm. He spent a month in Stockholm, Sweden, during the summer and attended a short course in architecture.

Jack Michael Fox, son of *Dr. and Mrs. Jack Fox* of Childress, died Sept. 30, 1961.

*Dr. James E. Tempesta,* Corpus Christi, presented two lectures, "Pharmacology of Local Anesthetics," and "General Anesthesia for Pediatric Dentistry" to the Monterrey Society for Children's Dentistry, Monterrey, Mexico, early in November.

*Dr. John Simpson,* medical director of the Robert B. Green Hospital, was honored by physicians attending the recent Armed Forces Obstetrics and Gynecology Seminar, who voted unanimously to establish an annual lectureship in his name.

*Dr. Henry R. Hoskins,* San Antonio, is the new president of the Southern Chapter of the American College of Chest Physicians.

## Earle Named Neuropathology Chief

Dr. Earle

*Dr. Kenneth M. Earle,* dean of the School of Medicine at The University of Texas Medical Branch, has been appointed Chief of Neuropathology of the U. S. Armed Forces Institute of Pathology. He will assume his new post at Walter Reed Hospital in Washington Feb. 1, and will serve as consultant in neuropathology to all the Armed Forces, Veterans Administration and other governmental hospitals and medical institutions here and abroad. His work will be about equally divided between consultation, education and research.

Dr. Earle succeeds Dr. Webb Haymaker, who will have a key post in the Life Sciences Division of the National Aeronautic and Space Agency in the Houston-Galveston area.

## Pennsylvania Honors Senior Alumni

Six Texas physicians were honored as distinguished senior alumni of the University of Pennsylvania School of Medicine recently at a reception and dinner in Dallas.

The six, all of whom have been in practice for more than 50 years, are Dr. Witten B. Russ of San Antonio, class of 1898; Col. James Heysinger of San Antonio, class of 1901; Dr. A. Philo Howard of Houston, class of 1901; Col. George M. Edwards of San Angelo, class of 1903; Dr. Frederick E. Hudson of Stamford, class of 1908; and Dr. Truman C. Terrell of Fort Worth, class of 1911.

Presentations of special certificates were made by Dr. Philip Barba, associate dean of the School of Medicine. Dr. Stewart Fish served as Dallas chairman for the medical alumni program.

Also honored were both the incoming and outgoing presidents of the Southern Medical Association. Drs. Lee F. Turlington of Birmingham, Ala., the current president of SMA, and A. Clayton McCarty of Louisville, Ky., president-elect, are graduates of the University of Pennsylvania School of Medicine.

### Papers Due for 1962 SMA Meet

The Section on Ophthalmology and Otolaryngology of the Southern Medical Association is accepting papers to be considered for presentation before the next annual meeting. May 15, 1962, is the deadline for submitting papers. Dr. Albert C. Esposito, Suite 1212, First Huntington National Bank Building, Huntington 1, W. Va., can provide further information.

## Industrial Physicians Face Problems of Business Travel

The occasional trip by an executive to visit a fair or attend a convention has been virtually outmoded. Now, many executives spend most of their time on the road, often in a remote locale.

The industrial physician needs to inform his patients of where and how to find good medical care in the areas in which he is traveling. Time zone changes which may interrupt habits of sleep, digestion, or elimination should be noted and planned for by the physician; travelers often neglect this factor.

The traveler should be supplied a medical kit with medications for minor illnesses to which he is likely to succumb . . . analgesics, antidiarrheal agents, antacids, anticholinergic compounds, antivertigo compounds, nasal decongestants, antihistamines, antibiotics, and sedatives. These kits should be individualized for the needs of each traveler.

These problems, and how to handle them, are detailed in an article, "Protecting the Health of Travelers," appearing in the October issue of *Industrial Medicine and Surgery*. The author is Leon J. Warshaw, M.D., Medical Director of Paramount Pictures Corporation and of United Artists Corporation.

## *Texans Receive Military Surgeons Awards*

Two Texans received awards at the 68th annual meeting of the Association of Military Surgeons held Nov. 6-8 in Washington, D. C.

Mrs. Adele C. Pittman of Houston, chief of nutrition service for the Veterans Administration Regional Office, received the McLester Award, presented annually by the J. B. Roerig Company Division of Charles Pfizer and Company, Inc., for outstanding work in the field of nutrition and dietetics.

Major Paul E. Hibbard, chief of pharmacy service, United States Air Force Hospital at Lackland Air Force Base, Tex., was recipient of the Andrew Craigie Award, presented by the Lederle Laboratories Division of the American Cynamid Company for outstanding contribution to the advancement of professional pharmacy in the federal government.

### AAMA Honors Dr. M. O. Rouse

Dr. M. O. Rouse of Dallas was awarded an honorary life membership in the American Association of Medical Assistants at the organization's recent convention in Reno, Nev.

During the past year, Dr. Rouse served as a member of the AAMA advisory board. He has been appointed by the American Medical Association to serve as liaison advisor to the AAMA for the coming year.

# 1962 Conference for Physicians & County Medical Society Officials

## Texas Medical Association, Headquarters Building, Austin, January 20, 1962

### First Morning Session, 8 a.m.

SYMPOSIUM ON COUNTY MEDICAL SOCIETY ADMINISTRATION

Charles E. Oswalt, Jr., M.D., Fort Stockton, Chairman, Board of Councilors, Presiding.

THE PURPOSE OF THIS CONFERENCE, AND SOME RECENT POLICY DEVELOPMENTS.—Charles E. Oswalt, Jr., M.D.

THE PRESIDENT: THE MAN IN THE DRIVER'S SEAT.—Walter Walthall, M.D., San Antonio, Vice Chairman, Board of Councilors.

THE SECRETARY-TREASURER: MAKING THE WHEELS TURN.—Carlos E. Fuste, Jr., M.D., Alvin, Secretary, Board of Councilors.

ATTENDANCE — PROGRAMS — COMMITTEE WORK.—A. Rex Kirkley, M.D., Belton, Chairman, Committee on Health Insurance.

PANEL SESSION ON COUNTY MEDICAL SOCIETY ADMINISTRATION

William H. Gordon, M.D., Lubbock, Councilor, Third District, Presiding.

Panel members:

Ray G. Boster, M.D., San Angelo, President, Tom Green-Eight Counties Medical Society.

Sam A. Nixon, M.D., Nixon, Secretary, Gonzales County Medical Society.

Mr. Sid Cockrell, San Antonio. Executive Secretary, Bexar County Medical Society.

Mr. E. Maxwell Jones, C.P.A., Austin, Business Manager, Texas Medical Association.

Question and Answer Period.

### Second Morning Session, 10:15 a.m.

James D. Murphy, M.D., Fort Worth, Speaker, House of Delegates, Presiding.

1962 . . . THE YEAR OF THE COUNTDOWN FOR MEDICINE.—Harvey Renger, M.D., Hallettsville, President.

MEDICINE'S MISSION IN A CHANGING CULTURE.—The Rev. Robert P. Varley, Th.D., Salisbury, Md., Rector, Salisbury Parish.

IMPROVING THE CASE AGAINST SOCIALIZED MEDICINE.—William R. DeMougeot, Ph.D., Denton, Director of Debate and Forensics, North Texas State University.

THE SIGNIFICANCE OF THE DRUG HEARINGS. Austin Smith, M.D., Washington, D. C., President, Pharmaceutical Manufacturers Association.

FILM.

### Luncheon, 12:35 p.m.

Courtesy of Texas Medical Association.

### First Afternoon Session, 2 p.m.

Charles Max Cole, M.D., Dallas, Vice Speaker, House of Delegates, Presiding.

SOCIALIZED MEDICINE THROUGH THE BACK DOOR.—Ben H. Mitchell, Dallas, Chairman, Insurance Committee, Chamber of Commerce of the United States; President, Texas Employers' Insurance Association.

PANEL SESSION OF MEDICAL SERVICE PROGRAMS AND 1962 LEGISLATIVE ISSUES.

R. Mayo Tenery, M.D., Waxahachie, Vice President, Presiding.

THE NEW VENDOR'S MEDICAL CARE PROGRAM. Walter R. McBee, Dallas, Executive Director, Blue Cross-Blue Shield of Texas, Inc.

KEOGH-SIMPSON LEGISLATION; RETIREMENT TAX BENEFITS FOR PHYSICIANS AND THE SELF-EMPLOYED.—Paul Donelan, LL.B., Washington, D. C., Legislative Attorney, American Medical Association.

THE VETERANS ADMINISTRATION HOSPITAL PROGRAM; ITS IMPACT UPON THE PRIVATE PRACTICE OF MEDICINE.—Milton V. Davis, M.D., Dallas, Chairman, Committee on Military and Veterans Affairs.

DeMougeot

Mitchell

Smith

Varley

IMPLEMENTING OUR LEGISLATIVE OBJECTIVES. Philip R. Overton, LL.B., Austin, General Counsel.

DISCUSSION.

**Second Afternoon Session, 4:15 p.m.**

Harvey Renger, M.D., Hallettsville, President, Presiding.

PRESERVING AMERICA FOR THE LAND OF THE FREE.—Edward V. Rickenbacker, New York, Chairman of the Board, Eastern Air Lines.

**Hospitality Hour, 6:30 p.m.**

Physicians, their wives and guests are invited to a hospitality hour in the Crystal Ballroom, Driskill Hotel, courtesy of the Medical Protective Company.

## *Orientation Program*

**First Morning Session**

8:30—REGISTRATION.

9:00—CALL TO ORDER.—James D. Murphy, M.D., Fort Worth, Speaker, House of Delegates, Presiding.

9:05—WELCOME: OBJECTIVES OF THE ORIENTATION PROGRAM.—Travis Smith, M.D., Abilene, Councilor, District 13.

9:15—AN ACCOUNTING OF STEWARDSHIP: WHAT HAPPENS TO YOUR $45 DUES?—Robert W. Kimbro, M.D., Cleburne, Chairman, Board of Trustees.

9:30—THE BEST MEDICAL CARE FOR ALL TEXANS.—C. Lincoln Williston, Austin, Executive Secretary.

**Second Morning Session**

James D. Murphy, M.D., Fort Worth, Speaker, House of Delegates, Presiding.

10:15—1962 . . . THE YEAR OF THE COUNTDOWN FOR MEDICINE.—Harvey Renger, M.D., Hallettsville, President.

10:35—MEDICINE'S MISSION IN A CHANGING CULTURE.—The Rev. Robert P. Varley, Th.D., Salisbury, Md., Rector, Salisbury Parish.

11:10—IMPROVING THE CASE AGAINST SOCIALIZED MEDICINE.—William R. DeMougeot, Ph.D., Denton, Director of Debate and Forensics, North Texas State University.

11:45—THE SIGNIFICANCE OF THE DRUG HEARINGS.—Austin Smith, M.D., Washington, D. C., President, Pharmaceutical Manufacturers Association.

12:15—LUNCHEON, courtesy of the Texas Medical Association.

**First Afternoon Session**

Charles Max Cole, M.D., Dallas, Vice-Speaker, House of Delegates, Presiding.

1:15—MEDICAL ETHICS CONSIDERATIONS IN THE PRACTICE OF MEDICINE.—C. E. Oswalt, Jr., M.D., Fort Stockton, Chairman, Board of Councilors.

1:35—MEDICAL ETIQUETTE; OBLIGATIONS OF THE PHYSICIAN TO COLLEAGUES AND TO THE PROFESSION.—R. Mayo Tenery, M.D., Waxahachie, Vice-President.

2:00—SOCIALIZED MEDICINE THROUGH THE BACK DOOR.—Ben H. Mitchell, Dallas, Chairman, Insurance Committee, Chamber of Commerce of the United States; President, Texas Employers' Insurance Association.

**Second Afternoon Session**

Charles Max Cole, M.D., Dallas, Vice-Speaker, House of Delegates, Presiding.

2:45—SERVING THE DOCTORS OF TEXAS.—Donald M. Anderson, Austin, Assistant Executive Secretary.

3:05—DOCTOR-PATIENT RELATIONS. — Walter Walthall, M.D., San Antonio, Vice-Chairman, Board of Councilors.

3:25—LEGAL ASPECTS OF MEDICAL PRACTICE; MALPRACTICE—HOW TO AVOID IT.—C. Dean Davis, LL.B., Austin, Office of the General Counsel.

**Final Afternoon Session**

Harvey Renger, M.D., Hallettsville, President, Presiding.

4:15—PRESERVING AMERICA FOR THE LAND OF THE FREE.—Edward V. Rickenbacker, New York, Chairman of the Board, Eastern Air Lines.

4:45—ADJOURNMENT.

**6:30 p.m.**

6:30—HOSPITALITY HOUR FOR PHYSICIANS, WIVES, AND GUESTS.—Crystal Ballroom, Driskill Hotel. Courtesy of The Medical Protective Company.

## New Science Probes Disease Proneness

Scientists now have the tools and impetus to develop expertness in determining, in advance, what people are prone to contract specific diseases, according to two University of Texas scientists.

Roger L. Williams, Ph.D., and Frank L. Siegel, Ph.D., reported on a new branch of medical service, propetology, which deals with each individual's innate susceptibility and resistance to disease, in a recent issue of the *American Journal of Medicine.* Dr. Williams is the internationally known biochemist who heads the Clayton Foundation Biochemical Institute at the university. Dr. Siegel has been conducting postdoctoral research in the chemistry department for the past two years.

The new science needs only to be developed, the two scientists said. It must be based on "increased knowledge about individuality in the areas of anatomy, physiology, and biochemistry".

Drs. Williams and Siegel said the use of propetology might someday make possible the avoidance of many diseases, including gout, arthritis, atherosclerosis, muscular dystrophy, multiple sclerosis, cardiac and circulatory diseases, cancers of various types and in various sites, and even schizophrenia, alcoholism, and drug addictions.

"People who are prone to have arthritis or stomach cancers or to become alcoholics or mental cases would not need to suffer from these diseases if the proneness were recognized early and appropriate measures (largely unexplored up to now) could be taken to overcome it," they said.

Future development of the new science rests on a collection of a "vast and cumulative amount of data" regarding individuals and their distinguishing characteristics and on rapid expansion of prognostic research techniques with automated devices and electronic computers, the scientists wrote.

## VA Mental Patient Recovery Increasing

The number of Veterans Administration mental patients recovering and returning to their home communities has nearly tripled in less than ten years, according to a VA report.

Dr. John J. Blasko, assistant director of psychiatry and neurology service for the VA, attributed the steady increase to progress by the VA hospitals in therapy, establishment and growth of VA programs such as foster homes, half-way houses, day care centers, vocational counseling, and job placement, which help mental patients make the transition from hospital to community. As a result, VA hospitals are able to treat many more psychiatric patients with the same number of beds.

## Care Urged in Handling Radioactive Materials

The need for careful observation in handling radioactive materials or radiation producing devices was noted recently in an incident involving a Fort Worth industrial firm.

A shipment of cobalt-60 was sent by express 1,500 miles to the Fort Worth plant. The container, about a foot high and nine inches in diameter, was nearly pure lead.

When the shipment arrived, the receiving clerk reached for his radiation monitor. The cobalt-60 source, in a tiny container, was attached outside of the lead container. Geiger counter readings revealed 24 milliroentgens per hour at one meter distance and about 13 roentgens per hour on contact. It was noted that the source could be potentially dangerous if handled for any period of time. The shipment took five days of travel time and probably was handled several times from its origin until its arrival in Fort Worth. Both the Texas State Department of Health and the Atomic Energy Commission investigated the incident, reported in a recent issue of *Texas Health Bulletin.*

## UT Nursing School Enrollment Rises

Enrollment in the School of Nursing at the University of Texas Medical Branch in Galveston is up one-third over 1960-61. This year, 206 students are enrolled in all the school's programs as compared to 155 students last year, according to an article in the October issue of *Medical Center News.*

The enrollment increase is reported particularly encouraging in view of the nationwide shortage of nurses.

## *Bachelor Businessman Left Legacy To The Sick*

The Hermann medical facilities in Houston, serving more than 28,000 patients annually, are the legacy of a bachelor businessman with compassion for the sick.

George H. Hermann's parents came to America from Switzerland. His father opened a bakery in Houston, prospered in this business, and later went into dairying and real estate. George was one of five children, none of whom ever married. He served in the Confederate Army in the Texas Cavalry.

After the war, he engaged in cattle and land buying for several years, later dealing only in land. He bought business property, rent houses, and "marshes". In 1886, he bought some 2,500 acres in north Harris County on which oil was discovered.

Without a family of his own, he became interested in the poor people of Houston who were ill. As early as 1887 he began talking of a hospital and even gave a block of land to the county for a hospital. During a European tour, he visited his relatives in Switzerland. According to stories, his treatment there was not too cordial and may be another reason for his benevolence to the city of Houston. When he saw New York's Central Park he expressed the wish that Houston might have something similar. His gift of the deed to Hermann Park to the city was the fulfillment.

He died in 1914 and a year later, the inventory of his estate was $2,619,419. The estate was to be devoted to the building and maintenance of a hospital for the "indigent sick and infirm, in preference to others". The estate is now valued at ten times that figure. The Hermann Hospital Estate spends more than a million dollars a year on the operation of the Hermann Hospital, yet maintains sufficient reserve to continue indefinitely.

—Adapted from an article by Dr. Lyman C. Blair in the Harris County Medical Society Bulletin, September, 1961.

### Dental Clinic Opened For Handicapped

A dental clinic for the mentally and physically handicapped, as well as individuals with fears so severe they cannot or will not undergo usual dental treatment, opened Nov. 10 at Grand Central Hospital in New York City.

The clinic is affiliated with the Columbia University School of Dental and Oral Surgery. Use of new amnesic drugs, general anesthetics, and specialized equipment permit complete treatment in a single visit with the elimination of any frightening or painful experience.

## Antibiotics Withheld in Army Burn Experiment

Encouraging results from an experiment to withhold antibiotics from burned patients have been reported at the U. S. Army Surgical Research Unit at Brooke Army Medical Center, Fort Sam Houston, San Antonio.

The experiment is described in a recent issue of *Medical World News*.

Lt. Col. John A. Moncrief, general surgeon and commanding officer of the unit, said that "loading" the patient initially with drugs only gives the infecting organisms time to become resistant. "When the patient reaches the stage in which septicemia sets in, you're left without any effective antibiotics with which to fight it."

Emphasizing that it is infection which is fatal in burn cases, the Army surgeon stated that a key to controlling infection is "getting an adequate auto- or homograft on in time." The procedure is to excise the eschar and burn down to the muscle as soon as the patient's condition is stabilized, preferably three to five days after injury. Grafts are applied about 48 hours later.

Dr. Moncrief said that pseudomonas infections, the problem in 77 per cent of the cases, are "practically impossible" to overcome with antibiotic therapy.

### *The Way the Cookie Crumbles*

Weight watchers who yearn for a cookie at the coffee break can relax. Metrecal has a new dimension—wafers which contain four to ten times the protein but only about one-fourth the fat content of a typical cookie. The flavor is spice, not chocolate chip variety.

## Allergy Academy Seeks Insect Sting Victims

Names and addresses of persons who show either severe local or generalized allergic reactions to insect stings are being sought by the American Academy of Allergy.

The academy is attempting to compile such a list to determine "the most desirable therapeutic course to follow." The study is being conducted by volunteer physician members of the academy. Cooperating patients will receive a wallet-size card to alert medical personnel to the possibility that a sudden severe illness might be caused by insect sting allergy.

Physicians are asked to send names and addresses of such patients to the American Academy of Allergy, 750 N. Milwaukee St., Milwaukee 2.

NEWS
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# A Boy Named Christmas

*"The patient was a boy named Christmas, aged 5 years"**

In 1952, a newly recognized condition called "Christmas disease" after the name of the first patient examined in detail was clinically described. The name hemophilia B also has been used because the disease is clinically and genetically similar to classical hemophilia. Hemophilia B varies from the very mild to the very severe as does classical hemophilia. Even in its severe form it appears to be less incapacitating than true hemophilia, especially after the person is past adolescence. The treatment for both diseases is the same.

The following bibliography lists articles on Christmas disease which are available from the Memorial Library.


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Amos, J. A.: Polycythaemia Vera and Christmas Disease with Slightly Prolonged Prothrombin Time, J. Clin. Path. 13:299 (July) 1960.

Barrow, E. M.; Bullock, W. R.; and Graham, J. B.: A Study of the Carrier State for Plasma Thromboplastin Component (PTC, Christmas Factor) Deficiency, Utilizing a New Assay Procedure, J. Lab. & Clin. Med. 55:936 (June) 1960.

Bolton, F. G., and Clarke, J. F.: A Method of Assaying Christmas Factor; Its Application to the Study of Christmas Disease (Factor-IX Deficiency), Brit. J. Haemat. 5:396 (Oct.) 1959.

Brown, I. W., Jr.; Smith, W. W.; and Howse, R. M.: Surgical Management in Hemophilia and the Hemophilioid Diseases, Ann. Surg. 149:721 (May) 1959.

Carter, S. H.; Hougie, C.; and Menk, K.: Fatal Case of Congenital Plasma Thromboplastin Component Deficiency: Failure of Response to Therapy in Christmas Disease, J.A.M.A. 173:631 (June 11) 1960.

Clarke, J. E.: The Assay of Christmas Factor (Factor IX) in Normal and Pathological Sera, J. Med. Lab. Techn. 17:163 (July) 1960.

Cooke, I. A., and Douglas, A. S.: Demonstrable Deficiency of Christmas Factor in Two Sisters, Brit. Med. J. 5171:479 (Feb. 13) 1960.

Cook, I. A.: Mild Haemophilia and Christmas Disease: A Laboratory Study, Scot. Med. J. 5:323 (Aug.) 1960.

Cotten, H. B.: Clinical Problems in the Management of Hemophilia, J. M. A. Alabama 30:53 (Aug.) 1960.

Didsheim, P.; Ferguson, J. M.; and Lewis, J. H.: Hemostatic Data in Relatives of Hemophiliacs A and B, Arch. Int. Med. 101:347 (Feb.) 1958.

Fessey, B. M.; Meynell, M. J.; and Cooke, W. T.: Diagnostic Difficulties in Mild Haemophilia and Christmas Disease, J. Clin. Path. 13:475 (Nov.) 1960.

Greig, H. B.: Christmas-Factor (Factor IX) Deficiency Produced by Concurrent Administration of Heparin with Coumarin Drugs, Lancet 2:25 (July 11) 1959.

Israels, M. C.; Nour-Eldin, F.; and Wilkinson, J. F.: The Diagnosis and Management of Haemophilia and Christmas Disease, Postgrad. M. J. 35:514 (Sept.) 1959.

McIntyre, H.; Nour-Eldin, F.; Israels, M. C.; and Wilkinson, J. F.: Dental Extractions in Patients with


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Quick, A. J.: Hemophilia B (PTC Deficiency, or Christmas Disease), Arch. Int. Med. 103:762 (May) 1959.

Schaaf, W. J.: Early Aspiration of Joint in Christmas Disease, J.A.M.A. 175:509 (Feb. 11) 1961.

Shannon, R.: Traumatic Rupture of the Kidney in Christmas Disease, Australian & New Zealand J. Surg. 28:316 (May) 1959.

Silber, R., and Christenson, W. R.: Pseudotumor of Hemophilia in a Patient with PTC Deficiency, Blood 14:584 (May) 1959.

## New Books

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Collins, R. T.: Manual of Neurology and Psychiatry in Occupational Medicine, New York, Grune & Stratton, 1961.

Corday, E., and Irving, D. W.: Disturbances of Heart Rate, Rhythm and Conduction, Philadelphia, W. B. Saunders, 1961.

Eastman, N. J., and Hellman, L. M., Eds.: Williams Obstetrics, ed. 12, New York, Appleton, Century-Crofts, 1961.

Greenhill, J. P., Ed.: Year Book of Obstetrics and Gynecology, Chicago, Year Book Medical Publishers, 1961.

Gregory, I.: Psychiatry, Biological and Social, Philadelphia, W. B. Saunders, 1961.

Greulich, W. W., and Pyle, S. I.: Radiographic Atlas of Skeletal Development of the Hand and Wrist, ed. 2, Stanford, Stanford University Press, 1959.

Jewkes, J., and Jewkes, S.: The Genesis of the British National Health Service, Oxford, Basil Blackwell, 1961.

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Shapiro, R., and Janxen, A. H.: The Normal Skull, New York, Hoeber & Harper, 1960.

Shepard, W. P.: Executives Health Secrets, Indianapolis, Bobbs-Merrill, 1961.

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Tenney, B., and Little, B.: Clinical Obstetrics, Philadelphia, W. B. Saunders, 1961.

U. S. Department of Commerce, Bureau of the Census: Statistical Abstract of the United States, ed. 82, Washington, Government Printing Office, 1961.

Velardo, J. T.: Endocrinology of Reproduction, New York, Oxford Press, 1958.

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### Gifts to the Library

T. J. Archer, Jr., M.D., Austin, 60 journals, 12 pamphlets, 3 books.

Charles B. Dildy, M.D., Austin, 48 journals.

Enid Gilbert, M.D., Austin, 44 journals.

Joe T. Gilbert, M.D., Austin, 6 journals.

Alfred J. Kelly, M.D., Austin, 29 journals.

Sam N. Key, Jr., M.D., Austin, 38 journals.

John K. Kirby, M.D., Austin, 3 books.

Heinrich Lamm, M.D., Harlingen, 1 book.

Morris Polsky, M.D., Austin, 80 journals.

Marion L. Stahl, M.D., Austin, 29 journals, 15 books.

Douglas W. Terry, M.D., Austin, 3 journals.

Edward Zidd, M.D., Austin, 104 journals.

**". . . the doctor's catching up with medical records"**

## Tapes and Films

The Memorial Library currently subscribes to Audio-Digest tapes on surgery, internal medicine, pediatrics, and general practice. These tapes are available to physicians at no cost. A listing of specific topics will be mailed on request.

LIVING YEARS, 16 mm., black and white, 20 minutes. Produced by the Baptist Memorial Geriatric Hospital, San Angelo, Texas.

EXTERNAL CARDIAC MASSAGE (1960) sound, color, 22 minutes, 16 mm., C-114.

External cardiac massage, a recently developed technique for restarting hearts which have stopped beating—without opening the chest—is the subject of this new medical teaching film. If external cardiac massage, combined with assisted ventilation, is begun within four minutes after cardiac arrest, the central nervous system will receive enough oxygen to prevent serious damage. An animated sequence in the film illustrates how manual depression of the lower sternum compresses the heart, forcing blood into the pulmonary and systemic vessels. Release of the pressure allows the chest to expand and the heart to fill again. A highly recommended film for every person in the medical and paramedical areas.

# Reader's Guide

## The Hand—A Manual and Atlas For the General Surgeon

HENRY C. MARBLE, M.D., F.A.C.S., Consulting Surgeon to the Massachusetts General Hospital. 197 pages. $7. Philadelphia, W. B. Saunders Company, 1960.

This extremely well illustrated booklet emphasizes the functional anatomy of the hand. Many diagrammatic plates showing muscle, nerve, and blood supply as related to function offer a healthy background or review for a busy surgeon or general practitioner.

Anatomy of the hand is reviewed in cross section starting above the elbow and revealing in segmental areas, detailed placement of structures down to the proximal phalanges. Emphasis also is given to applied physiology of the hand particularly in regard to circulation and the effect on the autonomic nervous system. However, the section on the autonomic nervous system is not so good as could be desired. The author reviews details in examination of the hand with emphasis on physical diagnosis. An excellent section is presented on closed injuries and the management in detail of open injuries.

This is a very readable, simple, and comprehensive review of the hand as a functional organ. It does not go into the detail that more comprehensive books on the hand by other authors have attained, but it is not intended for that purpose. It is a valuable addition to the general practitioner's or surgeon's shelf.

—Louis E. Gibson, M.D., Corsicana.

## Fundamentals of Clinical Hematology

BYRD S. LEAVELL, M.D., Professor of Internal Medicine, Physician in charge, Hematology Section, School of Medicine, University of Virginia; Attending physician, University of Virginia Hospital; and OSCAR A. THORUP, JR., M.D., Associate Professor of Internal Medicine, School of Medicine, University of Virginia; Attending Physician, University of Virginia Hospital. 503 pages. $10. Philadelphia, W. B. Saunders Company, 1960.

The purpose of this textbook is expressed by the authors: ". . . there is a need for a new textbook that is designed for the student who is being introduced to hematology for the first time while he is in the midst of a crowded curriculum. Physicians in active practice similarly pressed for time have expressed a desire for a similar book, one that is comprehensive but not encyclopedic that could serve for a review and reorientation in the field."

This well organized text commences with a discussion of the morphology, chemistry, and function of blood cells. Following are sections on erythropoiesis, anemia, polycythemia, blood coagulation, leukocytic disorders, lymph node disorders and multiple myeloma. A chapter on hematologic techniques concludes the book.

The descriptive material is purposefully terse and to the point. Basic science considerations are sketched briefly, but emphasis obviously is on the practical aspects of the problems discussed. The value of the book is enhanced by the inclusion of extensive bibliographic references at the end of each chapter and by the widespread use of illustrations and well constructed diagrams. An interesting and useful facet of the authors' presentation is the liberal employment of case histories to illustrate the principles elucidated in the text.

One serious omission is the failure to discuss the applications of radio-isotopic techniques which are indispensable tools in the investigation of red cell

dyscrasias by present day standards. Otherwise, the book fulfills the limited goals set forth by the authors.

This is a useful addition to the small number of recently published general texts in the field of hematology. It is designed for and should be most useful to medical students and practitioners who wish a brief textbook for ready reference.

—Robert A. Hettig, M.D., Houston.

## Hypothermia for the Neurosurgical Patient

ANTONIO BOBA, M.D., Associate Professor of Anesthesiology, Albany Medical College of Union University; Attending Anesthesiologist, Albany Hospital; Attending Anesthesiologist, Veterans Administration Hospital, Albany, New York. 122 pages. $6. Springfield, Illinois, Charles C Thomas, 1960.

This book is divided into three sections. Chapter I deals with generalities of hypothermia in the neurosurgical patient, the general physiology of hypothermia, the methods of induction of hypothermia, responses to cooling, methods of detection of shivering, and of impending ventricular fibrillation. It also sets forth the temperatures which are believed to be "safe temperatures" below which ventricular fibrillation is likely to occur.

The opening chapter discusses electrolytic changes, as well as the pH, and presents details of other effects on metabolism, the direct and indirect methods with which the cardiovascular system and respiratory system are involved, and the central nervous system.

Chapter II outlines the technique with reference to selection of an anesthetic. The author recommends the use of ether in preference to fluothane, the technique of cooling, re-warming, and shivering, as well as the metabolic acidosis brought on by shivering and too rapid elevation of temperature. He stresses acid base and fluid balance in such cases.

The hazards of hypothermia are discussed and a number of the pitfalls are brought to attention. Methods of detecting and correcting pitfalls such as the difference between respiratory and metabolic acidosis are dealt with in the latter portion of the chapter.

Chapter III describes the type of lesions for which hypothermia is designed in the neurosurgical patient. The author stresses the vascular lesions such as intracranial aneurysms, arterio-venous malformations, and extremely vascular lesions such as the more vascular tumors in a review of the two previous chapters, and their practical application. The author goes into the pre-operative medication, anesthetic management, and treatment while in the recovery room and cites examples of six neurological cases.

This volume is an excellent treatise on hypothermia and should be more or less a "bible" for the person using this technique much in his surgical procedures.

—Joseph G. Klotz, M.D., Corpus Christi.

## Anatomy

ERNEST GARDNER, M.D., Wayne State University, DONALD J. GRAY, Ph.D., Stanford University, and RONAN O'RAHILLY, M.Sc., M.D., Wayne State University. 999 pages. $15. Philadelphia, W. B. Saunders Company, 1960.

This is a general anatomy book designed for medical and dental students, and although no substitute for the larger texts, it is one of the best shorter books available. It has much of value for students and physicians at all levels of anatomical knowledge.

The presentation is in general regional, although much of it is systematic. The descriptions are correlated with function and application. The clinical applications often require detail, and thus scope is given to the content. The approach is analytical as well as descriptive. This is particularly true of the line drawings with which the book is richly supplied. There are about 600 figures of which many are excellent reproductions of roentgenograms and photographs.

The literature is up to date, and the citations, as intended, give a student the realization that anatomy is a progressive science. Attention to the citations of literature is assured by having them as footnotes on the page, rather than at the end of the chapter. The footnotes also are used for elaborations and explanations which would otherwise diminish the clarity and simplicity of the main text. It is a readable and enjoyable book.

Although opinions will differ as to its use as a text for students it can be readily recommended as an aid and as supplementary reading.

—Raymond F. Blount, M.D., Galveston.

## Care of the Well Baby

KENNETH S. SHEPARD, M.D., Director of Well Baby Clinics, Northwestern University School of Medicine; Staff Examiner, Infant Welfare Society, Evanston; Pediatrician, Evanston Hospital Association and St. Francis Hospital, Evanston, Ill.; American Board of Pediatrics. 212 pages. $3.50. Philadelphia, J. B. Lippincott Company, 1960.

## Women and Fatigue

MARION HILLIARD, M.D., 170 pages. $2.95. Garden City, New York, Doubleday & Company, Inc., 1960.

## Injuries of the Brain and Spinal Cord and Their Coverings

SAMUEL BROCK, Ed. 739 pages. $18.50. New York, Springer Publishing Company, Inc., 1960.

This is the fourth edition of the well known book edited by Samuel Brock. The present volume is quite similar to previous editions. The chief change is the deletion of the previous chapter on medical-legal aspects of injuries of the brain and spinal cord and their coverings. The present edition does include the various chapters written by many distinguished authorities in the various fields relating to injuries of the brain and spinal cord. The content of the present volume includes discussions of the normal anatomy of the brain and spinal cord. In addition, it also includes roentgenographic findings and pathology of the various types of head and back injuries. Complications from head injuries including those of brain abscess, hematomas, and meningitis also are covered quite thoroughly.

Although the chapter on treatment of post-traumatic infections, including brain abscesses, has been relatively unchanged, the editor did include a brief paragraph at the end of this chapter concerning the use of the newer antibiotics. A discussion of the use of intravenous urea to control increased intracranial pressure due to cerebral edema would have been helpful in the present edition.

In general, this is an excellent reference book to be used not only by the general practitioner, but also by the specialist in the field of neurosurgery, and all students interested in the subject of injuries to the brain and spinal cord and their coverings.

—William G. Evans, M.D., Lubbock.

## Classics of Medicine and Surgery

Collected by C. N. B. CAMAC. 435 pages. $2.25. New York, Dover Publications, Inc., 1959.

To those physicians interested in the history of medicine who wish to see the past and contemplate the future this little inexpensively bound book contains much food for thought. One must philosophize to the point of the simpleness, directness and the astutely adroit manner in which these famous men approached their investigations with a thoroughness equal to that of the more mature and careful men of today.

It begins with the epoch making lecture on "The Antiseptic Principle of the Practice of Surgery" by Joseph Lister on August 9, 1867, presented before the annual meeting of the British Medical Association in Dublin. The graphic portrayal of the development of his method is one that holds the attention of the reader. The dramatic disappearance of hospital infections was such that it convinced the medical circles of the time with its validity.

William Harvey's classic description of the motion of the heart and blood in animals is well done. The step by step deduction of the whole circulation of the blood is one of the classic discoveries of all time.

Space does not permit the comprehensive comments that each of these sections deserve. However, all must know much more of medical heritage in order to assume full stature professionally and be a part of the integral medical structure of the country. Those who follow should be inspired to progress beyond what has been accomplished. One has only to mention the familiar men such as Auenbrugger and his introduction of percussion of the chest, Laennec and the stethoscope, Jenner and his smallpox vaccination efforts, Morton and the use of ether and Simpson, and the introduction of chloroform to give the reader an idea of the importance of finding these 12 classic history making medical papers in one single volume.

No one will want to miss the last paper in the book for it is the contribution of Oliver Wendell Holmes on puerperal or childbed fever, which cost the lives of so many people during the early days of the country. It is a matter of record that when he first made his contribution on this subject he had no university position. He went on in the face of bitter criticism to successively take the chair of anatomy at Harvard University, where he served as dean from 1847 to 1853. The documentation of his work is as sound in today's medical practice as it was in the times when Holmes established the mode of transmission of childbed fever.

—Joe C. Rude, M.D., Austin.

## Rudolph Matas (A Biography)

ISIDORE COHN, M.D. 431 pages. $5.95. Garden City, New York, Doubleday & Company, Inc., 1960.

Dr. Rudolph Matas was of Spanish heritage and, despite a complicated family and spiritual life, was one of the most colorful participants on the medical scene that this country ever produced. It is a fact not well known or disseminated that Dr. Matas grew up in Brownsville, Texas.

He had just graduated from medical school with the highest accolade of his class, a diamond finger ring and a gold headed cane, when he was catapulted into national prominence by being placed on the Yellow Fever Commission, which did investigative work on yellow fever. It was during this time that he met Carlos Finley and became a firm believer in the latter's theory of the transmission of yellow fever by the mosquito. In later years, Dr. Matas became the first Finley lecturer, honoring the

memory of Carlos Finley, at the invitation of the Cuban government.

Although Dr. Matas lived a rather cloistered personal life, he had not been in practice long before he became president of the Orleans Parish Medical Society and soon became editor of the New Orleans Medical Journal. In spite of this time consuming hobby, he did research work in New Orleans, at Johns Hopkins in Baltimore and in Washington, D. C., and spent much time in the library of the New York Academy of Medicine. He also found time not only to carry on an active private surgical practice, but to perform much surgery under the auspices of the faculty of Tulane University Department of Surgery at Charity Hospital. Here he devised his operative correction for imperforate anus in infants and thereby made a first in medical history, gaining recognition wherever he went by virtue of his research and contributions to surgery. His aneurysm and vascular surgery gained additional renown and recognition. Dr. Matas also was interested in skilled surgical nursing and through one of his wealthy patients, the first nurses' home was built, in connection with Charity Hospital.

Above all, he was beloved by his patients and had their utmost confidence. It is recounted that one of his patients was a 15 year old boy, by the name of Wheeler, who later formed a financial investment company with Dr. Matas as his first client and this astute investment assured his financial future. He was able to leave over a million dollars toward better library facilities to Tulane University.

Later, Dr. Matas suffered one of his greatest tragedies, the loss of an eye due to purulent material from a Bartholin's abscess. In spite of this, he carried on research, writing, and contributions to medical literature. In the end, one wonders how one person overcame so many obstacles and yet managed to accomplish so much. A simple listing of the honors bestowed upon him would require more space than this entire summary.

—Joe C. Rude, M.D., Austin.

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# RECENT DEATHS

## DR. W. C. TAYLOR, JR.

Dr. William Calvin Taylor, Jr., who had practiced more than 30 years in Calvert, died Sept. 14, 1961. He had been ill for about a year.

Born in Calvert on Oct. 13, 1903, he was the son of Dr. and Mrs. William C. Taylor, Sr. He attended local public schools, and studied two years at the University of Texas before entering the University of Tennessee College of Medicine, from which he was graduated in 1928. He spent one year as an intern at Shreveport Charity Hospital before returning to Calvert to practice.

Dr. Taylor had served both as president and secretary of the Brazos-Robertson Counties Medical Society, and also was a member of the Texas Medical Association, American Medical Association, Masonic Lodge, and the Calvert Presbyterian Church. He served several terms as mayor of Calvert, and once was re-elected to that post while in the service.

During World War II, he was a commander in the Navy, and served at the fleet hospital in the Russell Islands, at the Naval Air Station in Corpus Christi, and in Vero Beach, Fla.

Mrs. Taylor, the former Leone Clay of Hickman, Ky., is the only survivor.

## DR. G. V. SMITH

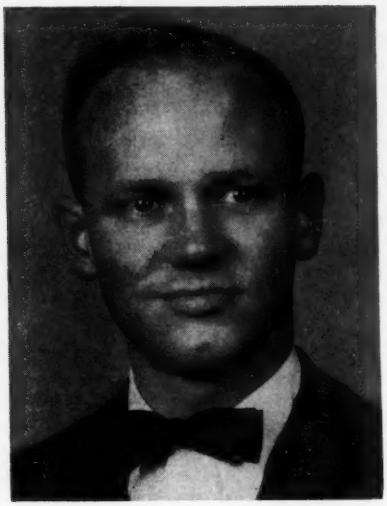
Dr. George Vaughn Smith of Floydada, died Oct. 29, 1961, in a Plainview hospital. He had suffered a fracture near the hip earlier in the week, and failed to respond to treatment.

Born in Houston, Miss., on Dec. 13, 1875, to the late Rev. and Mrs. H. E. Smith, he moved with his family to Texas in 1885. He attended public schools, and had studied at North Texas Normal School in Denton before entering Fort Worth University Medical Department, from which he received his doctor of medicine degree in 1906. He began his medical practice in Chico in Wise County, but moved in 1909 to Floydada, where he was associated with his brother, the late Dr. Lon V. Smith, for many years. Portions of five counties were included in his practice, and he and his brother built and operated a hospital that served a wide area for a quarter of a century.

Dr. Smith had served four terms as president of the Hale-Floyd-Briscoe Counties Medical Society, and also was a member of the Texas Medical Association, American Medical Association, Rotary Club, Masonic Lodge, and the First Methodist Church.

Dr. Smith and the former Beatrice Henry were married in Floydada on June 19, 1912. Survivors include Mrs. Smith, one daughter, Mrs. Guy Ginn, Floydada; three grandchildren, and several nieces and nephews.

## DR. W. S. PATTON



Dr. Walter Stirling Patton of Amarillo was killed Oct. 11, 1961, in an airplane crash 20 miles southwest of Las Vegas, N. Mex. He and three companions were enroute to Albuquerque in a small, privately-owned plane when the crash occurred. New Mexico police speculated that occupants of the crippled plane chose to crash rather than land on a nearby busy highway at the risk of injuring motorists.

Dr. Patton, son of Dr. Louis K. and Blanche Stirling Patton, was born Dec. 1, 1930, in Amarillo. He was educated in the Amarillo public schools; attended Dartmouth College, Hanover, N. H., and the University of Oklahoma, Norman, where he received his A.B. degree in 1953; and was graduated from the University of Tennessee College of Medicine in 1957.

Upon completion of his internship at John Peter Smith Hospital, Fort Worth, in 1958, Dr. Patton entered the practice of medicine in Amarillo where he was associated with his father and his cousin, Dr. David Patton. He remained there until his death.

He was a member of Texas Medical Association through the Potter-Randall Counties Medical Society. He belonged to Phi Rho Sigma medical fraternity, Sigma Alpha Epsilon, and Westminster Presbyterian Church of Amarillo.

Dr. Patton is survived by his wife, the former Karli Yowell, whom he married April 15, 1956, in Hardy, Ark. Also surviving are two sons, Brent Stirling and Steven Shofner; a daughter, Kelly Rene; his parents; a sister, Mrs. Delmar Durrett; and his grandmother, Mrs. LaVerne Stirling; all of Amarillo.

## DR. K. C. O'NEAL

Dr. Kermit Curtis O'Neal died Sept. 14, 1961, in Harlingen.

Dr. O'Neal was superintendent of the anesthesia section of the Harlingen hospital.

Born May 30, 1919, in Sellers, Miss., he moved to El Paso with his family when he was a child, and attended public schools there. He was graduated from the Texas College of Mines and Metallurgy in 1940, and earned a doctor of medicine degree from the University of Texas Medical Branch, Galveston, in 1943. He practiced briefly in Houston before going to St. Elizabeth's Hospital, Washington, D. C., in 1944 for his internship. He returned to the Medical Branch in 1945 for a residency in anesthesiology, and for a time was an instructor there.

After practicing in Houston for about 10 years, Dr. O'Neal moved in 1959 to Harlingen to accept the position he held at the time of his death.

He belonged to St. Alban's Episcopal Church and the East Harlingen Kiwanis Club.

A member of the Texas and American Medical Associations through the Galveston, Harris, or Cameron-Willacy Counties Medical Societies throughout his career, Dr. O'Neal also was a member of the Texas and American Societies of Anesthesiology, the Texas Trudeau Society, and a diplomate of American Board of Anesthesiology.

Survivors are Mrs. O'Neal, the former Margaret Rosalyn Cammack whom he married March 22, 1947, and a son, Kermit Curtis, Jr. (Kim), both of Harlingen; his father, G. W. O'Neal, El Paso; two brothers, Prentiss O'Neal, Carlsbad, N. Mex., and Gordon O'Neal, El Paso; and two sisters, Mrs. W. W. Rogers and Mrs. C. H. Lambert, both of El Paso.

DR. KERMIT C. O'NEAL

## DR. D. C. CARRINGTON

Dr. Dewitte Cameron Carrington, who had practiced pediatrics in Houston for 15 years, died Sept. 17, 1961, at his home.

Son of Dr. Duncan C. and Mabel (Lytle) Carrington, he was born Sept. 3, 1913, in Marquez, Texas, and received his preliminary education there. In 1938, he was graduated from the University of Texas, Austin, and went on to the Medical Branch in Galveston, where he completed his medical training in 1942. After interning for a year at Charity Hospital, New Orleans, Dr. Carrington served 37 months as a captain in the U. S. Army Medical Corps, and was stationed in the Pacific area.

Dr. Carrington was a member of the Texas and American Medical Associations through the Harris County Medical Society, and also was a member of the Houston and Texas Pediatric Societies and the Memorial Drive Baptist Church. Hunting, fishing, gardening, and camping gave him much pleasure in his leisure time.

He was married March 21, 1946, to the former Miss Beth Beene of Jewett, who survives, as do a daughter, Rosemary, and four sons, Michael, Dewitte, David, and Dale, all of Houston; and two brothers, Jack Carrington, Houston, and Dr. W. L. Carrington, Mexia.

## DR. J. J. de LEON

Dr. John Joseph de Leon, San Antonio, died there Oct. 7, 1961. Cause of death was pulmonary embolus and iliofemoral thrombophlebitis.

Dr. de Leon was born Dec. 30, 1914, in Guanajuato, Mexico. His parents were Ignacio and Maria Q. Guerrero de Leon. He received preliminary education at St. Mary's University, San Antonio, and was graduated from Baylor University College of Medicine in 1940. Residency was served in San Antonio at Robert B. Green Hospital, after which Dr. de Leon entered private practice as a surgeon.

He was a staff member of the Santa Rosa Medical Center, Nix Memorial Hospital, Baptist Memorial Hospital, and Robert B. Green Hospital. He was a member of Bexar County Medical Society, Texas Medical Association, American Medical Association, American Academy of General Practice, Texas Surgical Society, International College of Surgeons, Southern Surgical Congress, a Fellow of American College of Surgeons, and a Fellow Surgeon of Lahey Clinic in Boston.

On June 21, 1937, he and Miss Maria Gordon were married in Mexico City.

Dr. de Leon was a member of the Board of Governors of St. Mary's University. Recognition in fraternal organizations included Third Degree Knights of Columbus Council 786 and San Antonio Fourth Degree General Assembly.

DR. J. J. de LEON

He is survived by his wife; five sons, Phillip Lewis, Michael Anthony, Robert Paul, Richard Frederick, and John Joseph de Leon, Jr.; daughter, Mrs. George Zepeda; and one grandchild. All live in San Antonio.

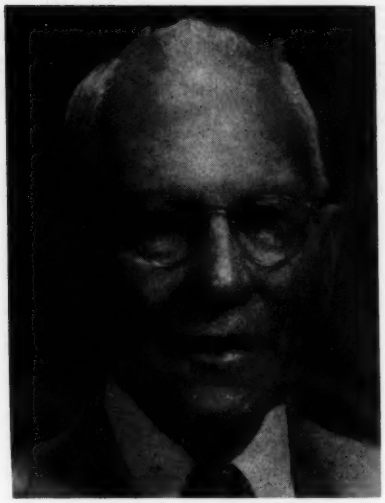
## DR. C. M. CASH

Dr. Clarence McClellan Cash, who in 1953 was named General Practitioner of the Year, died Oct. 13, 1961, in a Harlingen hospital. He had practiced medicine in San Benito for 48 years and was reported to have delivered 5,500 babies during his career.

Cause of death was cardiac failure, arteriosclerotic cardiovascular disease, complicated by a recent fracture of the right hip.

Dr. Cash was born April 19, 1864, in White County, Tenn. His parents were Reuben and Mary Jackson Cash. As a boy of 12 he came to Texas, leaving two years later to enroll in Southern Illinois Normal University near Carbondale. When he was 16 years old, he returned to Texas and began earning his living by working as a farm hand.

Dr. Cash began teaching school at Kosse in Limestone County in 1884. Because of ill health, he



DR. C. M. CASH

moved to West Texas in 1890, settling at Knickerbocker. Simultaneously from 1893 through 1896, he taught school at Knickerbocker and served a medical preceptorship under Dr. Boyd Cornick. After studying medicine at old Fort Worth University Medical Department in Fort Worth, he first practiced medicine in 1898 at Guion. He conducted his practice on horseback from saddlebags given him by a retiring physician.

In 1906 he and Dr. L. W. Hollis became partners in the Hollis Sanitarium at Abilene, the first hospital to be established between Fort Worth and El Paso. While in Abilene, he served as city and county health officer and helped draft the first milk ordinance for Abilene.

Dr. Cash moved to San Benito in 1914. He served as chief of the obstetric service of the Valley Baptist Hospital in Harlingen and was chief of staff there in 1928. He held a similar position at the Dolly Vinsant Memorial Hospital in San Benito in 1950. Dr. Cash was instrumental in organizing the Cameron County Health Unit.

Throughout his medical career, Dr. Cash took numerous postgraduate and refresher courses. The most recent course he took was one in obstetrics for which he enrolled on his eighty-fifth birthday in 1949.

Dr. Cash had been a member continuously since 1905 of the American Medical Association and the Texas Medical Association, first through the Taylor and later through the Cameron-Willacy Counties Medical Societies. He served as secretary, vice-president, a member and chairman of the board of censors, and twice as president of the Cameron-Willacy Counties Medical Society. He was a delegate to the Texas Medical Association for eight years.

Dr. Cash was mayor of San Benito in 1916 and again in 1928. He also served a period as city commissioner. He was a charter member and a past president of the San Benito Rotary Club, and had been named to honorary membership in the Kiwanis, Lions, and 20-30 Clubs of San Benito. In 1940 the citizens of the community presented him with a plaque in recognition of his many years of service to them. In 1952, a "Dr. Cash Day" was proclaimed in San Benito and the new elementary school was dedicated and named in his honor. Also in 1952, the Woman's Auxiliary to the Cameron-Willacy Counties Medical Society presented him with a plaque signifying his then fifty-four years of medical practice.

Dr. Cash was active in Masonic work. In 1894 he was made a Master Mason in the Winters Lodge at Winters. He was master of the Tuscola Lodge in 1903, and master of the San Benito Lodge in 1916. He held a series of high offices in Masonry, culminating in his being made a thirty-third degree Scottish Rite Mason in Washington, D. C., in 1949.

In 1884 Dr. Cash married the former Miss Theodosia Stone of Blue Ridge. She was drowned in the 1919 hurricane in Corpus Christi. He married the former Mrs. Mona Reed in 1925. Mrs. Cash survives as do two sons, Dr. W. A. V. Cash of Abilene, and Dr. Clarence M. Cash, Jr., Beaumont dentist; two daughters, Mrs. Hermia Cottrell of San Benito, and Mrs. Ruth Edwards of San Antonio; two stepsons, John Charles Reed of Seaford, Del., and Robert K. Reed of San Antonio; a stepdaughter, Mrs. Paul Wright of La Feria; three grandchildren, five great-grandchildren, and three step-grandchildren.

## DR. T. M. FRANK

Dr. Theodore McConnell Frank, head of the industrial medicine department of the American Oil Company, Texas City, died Oct. 19, 1961, in a Houston hospital.

From 1928 until 1941, Dr. Frank was a medical missionary and general surgeon in Miraj, India, where, for a short time, he specialized in cancer surgery. Authorized by the Bombay Presidency to teach surgery, he taught several other subjects in the medical school at Miraj. In 1941 he became an industrial physician, at which time he moved to Texas City.

Son of Matthew Henry and Carrie Rachel (Stroup) Frank, he was born Nov. 22, 1901, in Topeka, Kan. He moved to Ohio with his family and received his preliminary education in the Wooster, Ohio, public schools, and was graduated from Wooster College in 1923.

DR. T. M. FRANK

Dr. Frank earned his M.D. degree from Western Reserve University School of Medicine, Cleveland, in 1926, and spent the following two years as an intern and resident in Cleveland City Hospital. He studied treatment of tuberculosis at Phipps, Pa.

Certified by the American Board of Preventive Medicine, Dr. Frank was a member of the Christian Medical Association of India, Burma, and Ceylon, the Galveston County Medical Society, Texas Medical Association, American Medical Association, Southern Medical Association, World Medical Association, and Post Graduate Medical Assembly of South Texas. He had been a lecturer in public health and tropical diseases at the University of Texas Medical Branch and Baylor University College of Medicine, and lectured on industrial medicine at the latter school. He was a staff member of Galveston County Memorial Hospital, La Marque, and St. Mary's Hospital in Galveston.

Dr. Frank was an active member of the First Presbyterian Church of Texas City, and had served as vice president of the Civic Music Association. He was a member of the Organ Guild of Galveston.

Miss Marian Loraine Cleary of Lakewood, Ohio, and Dr. Frank were married Jan. 1, 1928. She survives, as do two sons, David and Paul, both of Texas City; two daughter, Mrs. Mary Louise Triem, Minneapolis, and Mrs. Marjorie Ann Sanders, Honolulu; two brothers, Philip W. Frank, Dickinson, and L. S. Frank, Westerville, Ohio; a step brother, Dr. Robert Wilson, Washington, D. C., and two sisters, Dr. Ruth J. Pugh, Winter Haven, Fla., and Mrs. H. M. Parkhurst, Webster City, Iowa.

## ★ Coming Meetings

American Medical Association, Chicago, June 24-28, 1962. Dr. F. J. L. Blasingame, 535 N. Dearborn, Chicago 10, Exec. Vice-Pres.

Texas Medical Association, Austin, May 12-15, 1962. C. L. Williston, 1801 N. Lamar, Austin, Exec. Sec.

### Current Meetings

JANUARY

Texas Radiological Society, Austin, Jan. 19-20, 1962. Dr. R. P. O'Bannon, 1217 W. Cannon, Ft. Worth, Sec.

Texas Society of Pathologists, Inc., Austin, May 14, 1962. Dr. V. A. Stembridge, Southwestern Medical School, Dallas, Sec.

Twelfth District Society, Temple, Jan. 13, 1962. Dr. J. Dunlap, 2320 Columbus, Waco, Sec.

International Medical Assembly of Southwest Texas, San Antonio, Jan. 29-31, 1962. S. E. Cockrell, Jr., 202 W. French Place, San Antonio, Exec. Sec.

### National and Regional

American Academy of Allergy, Denver, Feb. 5-7, 1962. Mr. J. O. Kelley, 756 N. Milwaukee St., Milwaukee 2. Exec. Sec.

American Academy of Dermatology and Syphilology. Dr. R. R. Kierland, Mayo Clinic, Rochester, Sec.

American Academy of General Practice, Las Vegas, April 6-13, 1962. Mr. M. F. Cahal, Volker Blvd., at Brookside, Kansas City 12, Exec. Sec.

American Academy of Ophthalmology and Otolaryngology, Las Vegas, Nov. 4-9, 1962. Dr. W. L. Benedict, 15 2nd St., S.W., Rochester, Minn., Sec.

American Academy of Pediatrics, New York, April 30-May 2, 1962. Dr. E. H. Christopherson, 1801 Hinman, Evanston, Ill., Exec. Dir.

American Association of Genito-Urinary Surgeons, Skytop, Penn., May 9-11, 1962. Dr. W. J. Engel, 2020 E. 93rd, Cleveland 6, Sec.

American Association of Obstetricians and Gynecologists, Hot Springs, Va., Sept. 6-8, 1962. Dr. C. L. Randall, 216 Summer, Buffalo 22, Sec.

American Association of Plastic Surgeons, Del Monte, Calif., May 6-10, 1962. Dr. T. D. Cronin, 6615 Travis, Houston 25, Sec.

American Association for Thoracic Surgery, St. Louis, April 16-18, 1962. Dr. H. T. Bahnson, Johns Hopkins Hosp., Baltimore 5, Sec.

American Cancer Society, New York, Oct. 22-26, 1962. Mr. G. Whittlesey, 521 W. 57th, New York 19, Sec.

American College of Allergists, Minneapolis, April 1-6, 1962. Mr. E. Bauers, 2160 Rand Tower, Minneapolis, Exec. Vice-Pres.

American College of Chest Physicians, Chicago, June 21-25, 1962. Mr. M. Kornfeld, 112 E. Chestnut, Chicago 11, Exec. Dir.

American College of Gastroenterology, Chicago, Oct. 28-31, 1962. Mr. D. Weiss, 33 W. 60th, New York 23, Exec. Dir.

American College of Obstetricians and Gynecologists, Chicago, April 2-5, 1962. Mr. D. F. Richardson, 79 W. Monroe, Chicago 3, Exec. Sec.

American College of Physicians, Philadelphia, April 9-13, 1962. Dr. E. C. Rosenow, Jr., 4200 Pine, Philadelphia 4, Exec. Dir.

American College of Radiology, New York, Feb. 7-10, 1962. Mr. W. C. Stronach, 20 N. Wacker, Chicago 6, Exec. Dir.

American College of Surgeons, Memphis, Tenn., March 26-28, 1962. Dr. W. E. Adams, 40 East Erie, Chicago, Sec.

American Congress of Physical Medicine and Rehabilitation, New York, Aug. 27-31, 1962. Dorothea C. Augustin, 30 N. Michigan, Chicago 2, Exec. Sec.

American Dermatological Association (members only), Chandler, Ariz., March 28-31, 1962. Dr. Wiley M. Sams, 308 Ingraham Bldg., Miami 32, Sec.

American Gynecological Society, Hot Springs, Va., May 31-June 2, 1962. Dr. C. J. Lund, 260 Crittenden Blvd., Rochester 20, N. Y.

American Heart Association, Cleveland, Oct. 26-28, 1962. Mr. W. F. McGlone, 44 E. 23rd, New York 10, Sec.

American Hospital Association, Chicago, Sept. 17-20, 1962. Mr. M. J. Norby, 840 North Lake Shore Dr., Chicago 11, Sec.

American Neurological Association, Atlantic City, June 18-20, 1962. Dr. M. D. Yahr, 710 W. 168th, New York 32, Sec.

American Proctologic Society, Miami, Fla., April 30-May 3, 1962. Dr. N. D. Nigro, 7815 East Jefferson, Detroit 1, Sec.

American Public Health Association, Inc., Miami Beach, Oct. 15-19, 1962. Dr. B. F. Mattison, 1790 Broadway, New York 19, Exec. Sec.

American Society of Anesthesiologists, New York, Oct. 21-26, 1962. Mr. J. W. Andes, 515 Busse Highway, Park Ridge, Ill., Exec. Sec.

American Society of Clinical Pathologists, Chicago, Aug. 30-Sept. 8, 1962. Miss Eleanor F. Larson, 445 Lake Shore Drive, Chicago 11, Mgr.

American Surgical Association. Dr. W. Altemeier, Cincinnati General Hospital, Cincinnati 29, Sec.

Association of American Physicians and Surgeons, Inc., Chicago, April 6-7, 1962. Mr. H. E. Northam, 185 N. Wabash, Chicago 1, Exec. Dir.

International College of Surgeons, U. S. Chapter. Dr. R. T. McIntire, 1516 Lake Shore Dr., Chicago, Exec. Dir.

Radiological Society of North America. Mr. M. D. Frazer, 3145 O Street, Lincoln, Neb., Sec.

South Central Association of Blood Banks, Fort Worth, 1962. L. R. Guy, Ph.D., 2927 Maple, Dallas 4, Sec.

Southern Medical Association. Mr. R. F. Butts, 2601 Highland, Birmingham 5, Exec. Sec.

Southern Psychiatric Association, Galveston, Oct. 7-9, 1962. Dr. Sullivan Bedell, 1103 Barrs St., Jacksonville, Fla., Sec.

Southern Surgical Association. Dr. J. D. Martin, Jr., Emory U., Atlanta 22, Ga., Sec.

Southwest Allergy Forum, Memphis, April 14-17, 1962. Dr. D. Goltmann, Lebenheur Children's Hospital, 848 Adams Avenue, Memphis, Tenn.

Southwest Regional Cancer Conference. Mrs. I. F. Ball, Westchester House, Fort Worth, Sec.

Southwestern Medical Association, Albuquerque, Oct. 18-20, 1962. Dr. Grady Morrow, 1900 N. Oregon, El Paso, Sec.

Southwestern Society of Nuclear Medicine. Dr. J. R. Maxfield, Jr., 2711 Oak Lawn, Dallas, Sec.

Southwestern Surgical Congress, Albuquerque, N. Mex., April 2-5, 1962. Dr. R. B. Howard, 544 Pasteur Bldg., Oklahoma City 3, Okla.

Tri-State Medical Assembly. Dr. J. W. Wilson, Jr., 940 Margaret Place, Shreveport, Sec.

United States-Mexico Border Public Health Association. Dr. U. Blanco, El Paso, Sec.

## State

Texas Academy of General Practice, Fort Worth, Oct. 21-24, 1962. Mr. D. C. Jackson, 1905 N. Lamar, Austin, Exec. Sec.

Texas Academy of Internal Medicine. Dr. S. C. Arnett, Jr., 2609 19th, Lubbock, Sec.

Texas Air-Medics Association, Austin, May 12-13, 1962. Dr. C. F. Miller, Box 1338, Waco, Sec.

Texas Association for Mental Health. Mrs. L. Marcus, 3525 Arrowhead, Dallas, Sec.

Texas Association of Obstetricians and Gynecologists, Dallas, February 23-24, 1962. Dr. H. W. Savage, 815 Fifth Ave., Ft. Worth, Sec.

Texas Association of Public Health Physicians, Austin, May 13, 1962. Dr. Elizabeth Gentry, 1313 Sabine, Austin, Sec.

Texas Chapter, American Academy of Pediatrics, Austin, May 14, 1962. Dr. W. W. Kelton, Jr., 108 W. 30th, Austin, Sec.

Texas Chapter, American College of Chest Physicians, Austin, May 13, 1962. Dr. Donald L. Paulson, 3710 Swiss Ave., Dallas.

Texas Club of Internists. Dr. T. H. Harvill, Medical Arts Bldg., Dallas 1, Sec.

Texas Dermatological Society, Austin, May 14, 1962. Dr. D. S. Blair, 1609 Medical Arts Bldg., Dallas, Sec.

Texas Diabetes Association, Austin, May 13, 1962. Dr. John W. Chriss, 2436 Morgan, Corpus Christi, Sec.

Texas Division, American Cancer Society. Mr. C. W. Reimann, 5014 Bull Creek Rd., Austin 3, Exec. Sec.

Texas Heart Association. Mr. E. T. Guy, 404 Jesse H. Jones Library Bldg., Houston 25, Exec. Sec.

Texas Industrial Medical Association, Austin, May 13, 1962. Dr. R. E. Joyner, Box 471, Texas City, Sec.

Texas Neuropsychiatric Association, Austin, May 12, 1962. Dr. E. I. Bruce, Jr., 1014 Strand, Galveston, Sec.

Texas Ophthalmological Association, Austin, May 14-15, 1962. Dr. Harold Hunt, 150 Eighth St., S.E., Paris, Sec.

Texas Orthopedic Association, Austin, May 14, 1962. Dr. Margaret Watkins, 3503 Fairmount, Dallas, Sec.

Texas Otolaryngological Association, Austin, May 14-15, 1962. Dr. Louis E. Adin, Jr., 3707 Gaston, Dallas, Sec.

Texas Pediatric Society, Fort Worth, Sept. 21-22, 1962. Dr. C. E. Gilmore, 811 Bonham, Paris, Sec.

Texas Physical Medicine and Rehabilitation Society, Austin, May 13, 1962. Dr. O. Selke, Medical Professional Bldg., Houston, Sec.

Texas Proctologic Society, San Antonio, Feb. 15, 1962. Dr. T. Melton, 636 Hermann Professional Bldg., Houston, Sec.

Texas Public Health Association, Houston, Feb. 11-14, 1962. J. N. Murphy, Jr., P. O. Box 5192, Austin 31, Sec.

Texas Rheumatism Association. Dr. J. Kemper, 6655 Travis, Houston, Sec.

Texas Society of Anesthesiologists, Austin, May 12, 1962. Dr. E. L. Slataper, Medical Towers, Houston, Sec.

Texas Society of Athletic Team Physicians, Austin, May 12, 1962. Dr. L. Levy, Ft. Worth, Sec.

Texas Society of Gastroenterologists and Proctologists, Austin, May 13, 1962. Dr. Belton Griffin, 6648 Fannin, Houston, Sec.

Texas Society of Ophthalmology and Otolaryngology. Dr. O. Suehs, 14 Medical Arts Square, Austin, Sec.

Texas Society of Plastic Surgeons, Austin, May 11-12, 1962. Dr. R. O. Brauer, 6615 Travis, Houston, Sec.

Texas Society on Aging, Clinical Medicine Section, Austin, May 15, 1962. Mrs. W. B. Ruggles, 3701 Stratford, Dallas, Sec.

Texas Surgical Society, Galveston, April 1-3, 1962. Dr. W. B. King, Jr., 2320 Columbus Ave., Waco, Sec.

Texas Traumatic Surgical Society, Austin, May 13, 1962. Dr. J. C. Long, 805 W. 8th, Plainview, Sec.

Texas Tuberculosis Association, El Paso, March 29-31, 1962. Mrs. J. R. Walton, Jr., 1407 Andrews Hwy., Midland, Sec.

Texas Urological Society, Houston, February, 1962. Dr. N. F. McDonald, 915 Medical Arts Bldg., Houston 15, Sec.

## District

First District Society, Pecos, February, 1962. Dr. G. L. Black, 1501 Arizona, El Paso, Sec.

Second District Society. Dr. Broadway Broadrick, Box 111, Big Spring, Sec.

Third District Society, Pampa, Sept., 1962. Dr. H. F. Johnson, 2308 W. 8th, Amarillo, Sec.

Fifth and Sixth Districts Society. Dr. S. H. Ware, Jr., 3154 Reid Drive, Corpus Christi, Sec.

Seventh District Society. Dr. R. Lucas, 502 W. 13th, Austin, Sec.

Eighth District Society. Dr. H. Davis, 120 Barracuda, Galveston, Sec.

Ninth District Society.

Tenth District Society. Dr. I. M. Richman, 3280 Fannin, Beaumont, Sec.

Eleventh District Society. Tyler, Spring, 1962. Dr. F. Verheyden, 400 S. Ragsdale, Jacksonville, Sec.

Thirteenth District Society. Dr. R. D. Moreton, 1217 W. Cannon, Ft. Worth, Sec.

Fourteenth District Society.

Fifteenth District Society. Dr. J. S. Leeves, Naples, Sec.

## Clinics

Blackford Memorial Cancer Lectures. Dr. A. O. Jensen, Suite N-1, Medical Center, Denison, Chm.

Dallas Southern Clinical Society Conference, Dallas, March 19-21, 1962. Dr. C. M. Cole, 1421 Medical Arts Bldg., Dallas, Sec.

New Orleans Graduate Medical Assembly, New Orleans, March 12-15, 1962. Dr. Mannie D. Paine, Jr., 1430 Tulane Ave., New Orleans 12, Exec. Sec.

North Texas-Southern Oklahoma Fall Clinical Conference. Dr. F. J. Lee, 1300 8th, Wichita Falls, Chm.

Oklahoma City Clinical Conference, Oklahoma City, Oct. 29-31, 1962. Miss Alma F. O'Donnell, 503 Medical Arts Bldg., Oklahoma City 2, Exec. Sec.

Postgraduate Medical Assembly of South Texas. Mrs. W. H. Dahme, 412 Jesse H. Jones Library Bldg., Houston 25, Exec. Sec.

Private Clinics and Hospitals. Mr. B. J. Warren, Deaton Hospital, Galena Park, Sec.

## Board Examinations

Texas State Board of Medical Examiners, Dallas, Jan. 13-14, 1962. Dr. M. H. Crabb, 1714 Medical Arts Bldg., Fort Worth, Sec.

Texas State Board of Examiners in Basic Sciences. Mrs. Maria P. Hathaway, 1012 State Office Bldg., Austin, Exec. Sec.

DECEMBER 1961
VOLUME 57 NUMBER 12

# Texas State Journal of Medicine

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MAY 13-15
AUSTIN
TEXAS MEDICAL ASSOCIATION
ANNUAL '62 SESSION

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Texas State Journal of Medicine is published monthly by the Texas Medical Association. Subscription price, $3 per year for members; $6 for nonmembers; $7 for foreign. Single copy, 75 cents.

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**Editorial and Business Offices:** 1801 N. Lamar Blvd., Austin; Telephone: GReenwood 7-6704.

**Subscription** communications should be sent to the Business Offices. $3 per year for members, $6 for nonmembers; $7 for foreign; single copy, 75 cents.
**Contributions,** previously unpublished, are welcomed for review; suggestions for preparation are available from the Editorial Offices. News and other items should be sent to the Editorial Offices by the 20th of the month preceding publication. All contributions are sent at the owner's risk.
**Printing Offices:** c/o Stafford-Lowdon Company, 1114 West Daggett, Fort Worth 1.

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*PULS, R. J.: Inhalation of a Broncho-Dilator-Wetting Agent Solution. Annals of Allergy, 18:424, 1960.



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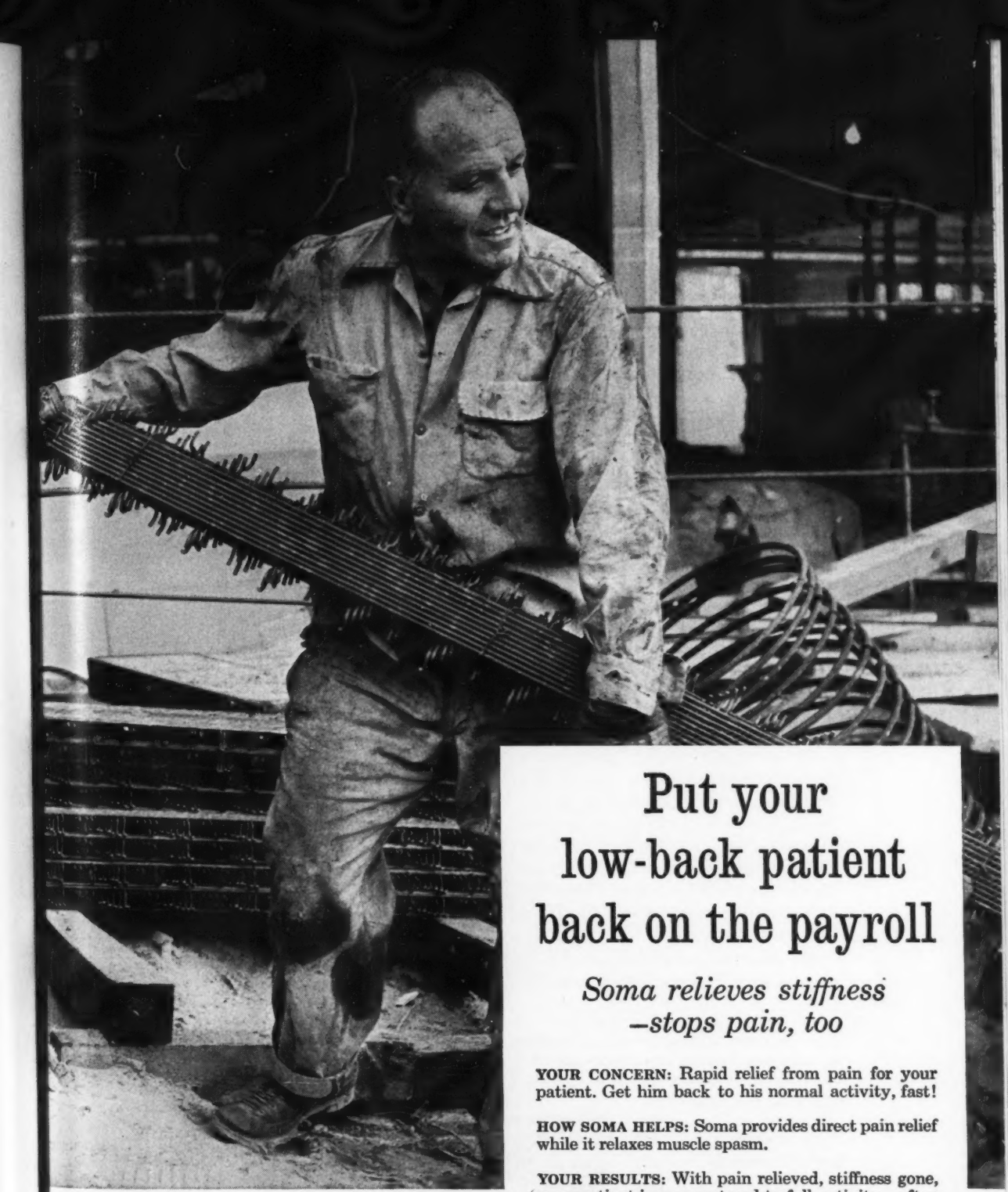

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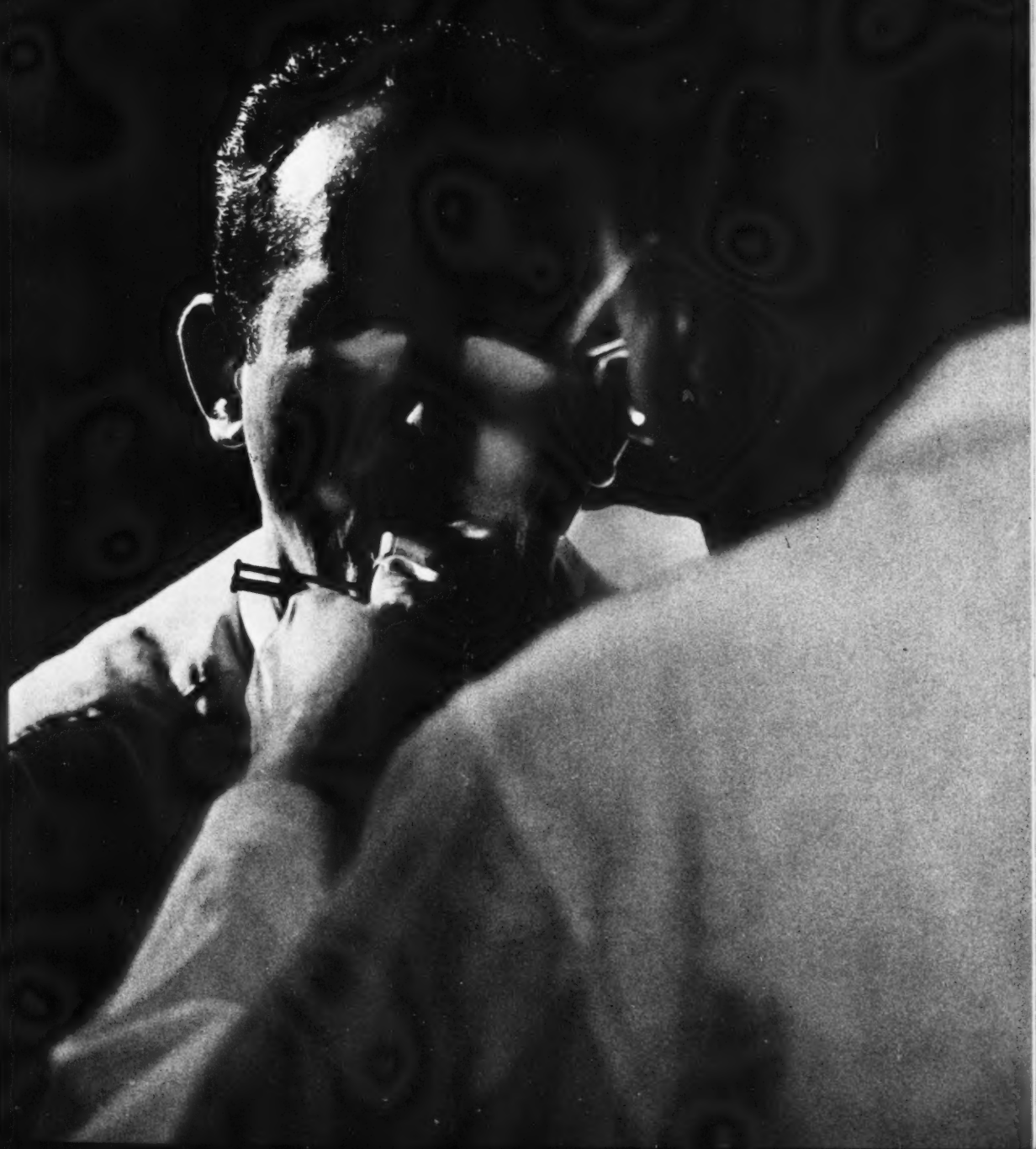

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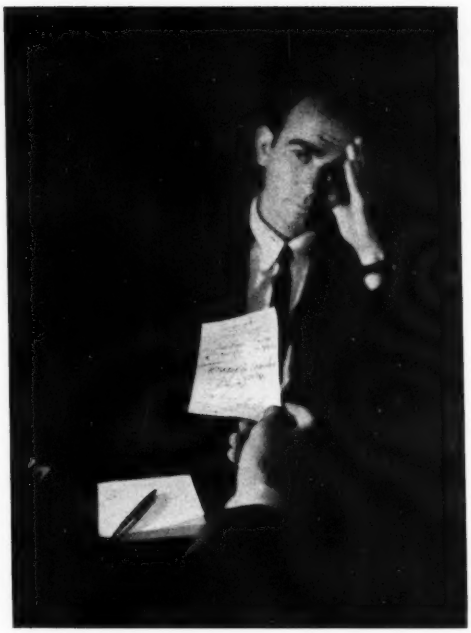

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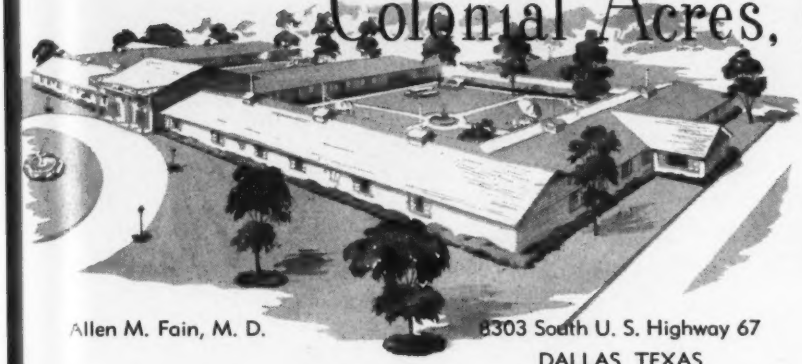

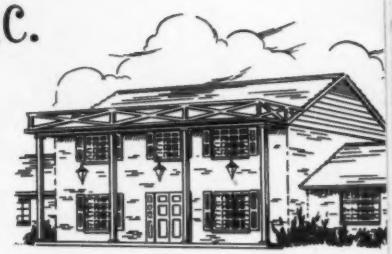

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Same formula as PABALATE-SODIUM FREE, plus hydrocortisone (alcohol) . . . 2.5 mg.

1. Barden, F. W., et al.: J. Maine M. A. 46:99, 1955.
2. Ford, R. A., and Blanchard, K.: Journal-Lancet 78:185, 1958.

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*Making today's medicines with integrity . . . seeking tomorrow's with persistence.*

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It's true. Kent's enormous rise in popularity—with all the attendant magazine and newspaper stories—really put momentum to the trend toward filter cigarettes!

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when
abnormal capillary
permeability and fragility
are factors in

# internal bleeding conditions

capillary hemorrhage
in duodenal ulcer

such as

**menorrhagia**
**habitual and threatened abortion**
**purpura**
(nonthrombocytopenic)
**ecchymoses**
**epistaxis**
**gingivitis**
**peptic ulcer**
**ulcerative colitis**

# CVP®
# duo-CVP
## (double-strength CVP)

C.V.P. helps diminish abnormal capillary permeability, fragility, and resultant bleeding by acting to maintain capillary integrity. C.V.P. is the original and an **exclusive** water-soluble citrus bioflavonoid complex . . . readily absorbed and utilized . . . biologically active. C.V.P. is relatively free (due to special processing) of hesperidin, naringin and other comparatively insoluble and inactive flavonoids found in citrus.

| Each C.V.P. capsule, or 5 cc. (approx. 1 teaspoonful) syrup, provides : | Each duo-C.V.P. capsule provides: |
|---|---|
| CITRUS BIOFLAVONOID COMPOUND 100 mg. | 200 mg. |
| ASCORBIC ACID (vitamin C) 100 mg. | 200 mg. |
| capsules — bottles of 100, 500 and 1000<br>syrup — bottles of 4 oz., 16 oz. and gallon | bottles of 50,<br>100, 500 and 1000 |

Samples and literature from

**u. s. vitamin & pharmaceutical corp.**

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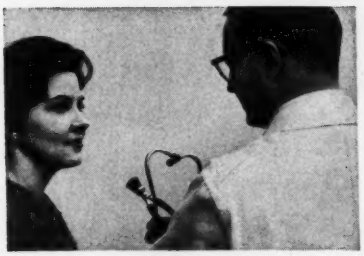

# SUCCESSFUL FAMILY PLANNING...BASED ON YOUR COUNSEL AND **LANESTA® GEL**

The new baby is beautiful, but his arrival raises some problems in family planning on which the mother will need help – *your* help. What you counsel or suggest to her may determine the family's happiness for many years to come. When she comes in to see you for her routine postnatal check-up, you have an ideal opportunity to counsel her and answer her questions. It's also an ideal time to recommend the use of Lanesta Gel.

Lanesta Gel, with or without a diaphragm, is a most effective means of conception control. Lanesta Gel offers faster spermicidal action because it rapidly diffuses into the seminal clot. In fact, the mean diffusion spermicidal time of Lanesta Gel is three to seven times faster than the mean diffusion times of ten leading commercially available contraceptive creams, gels, or jellies, according to Gamble ("Spermicidal Times of Commercial Contraceptive Materials – 1959").*

Lanesta Gel has complete esthetic acceptance and is well tolerated.

*Gamble, C.J.: Am. Pract. & Digest. Treat. *11*:852 (Oct.) 1960. See also Berberian, D.A., and Slighter, R.G.: J.A.M.A. *168*:2257 (Dec. 27) 1958; Kaufman, S.A.: Obst. and Gynec. *15*:401 (March) 1960; Warner, M.P.: J.Am.M. Women's A. *14*:412 (May) 1959.

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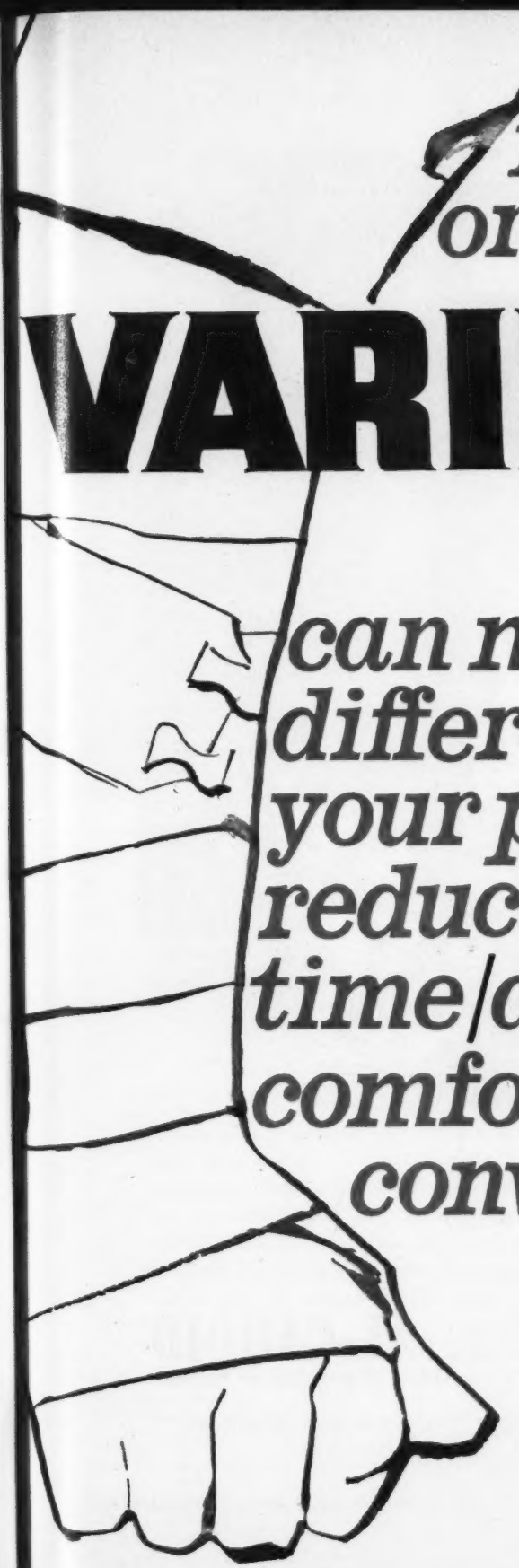

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# VARIDASE®

STREPTOKINASE-STREPTODORNASE LEDERLE

## buccal tablets

## can make a difference to your patient/ reduce recovery time/add comfort to convalescence

**VARIDASE** stimulates early fibrinolysis to reduce inflammation, swelling and pain. Natural regenerative factors penetrate the site to accelerate healing. A faster return to functional ability follows a more comfortable convalescence—a world of difference to your patient.

*Precautions: VARIDASE has no adverse effect on normal blood clotting. Care should be taken in patients on anticoagulants or with a deficient coagulation mechanism. When infection is present, VARIDASE Buccal Tablets should be given in conjunction with antibiotics.*

*Dosage: One buccal tablet four times daily usually for five days. To facilitate absorption, patient should delay swallowing saliva.*

*Supplied: Each tablet contains 10,000 Units Streptokinase, 2,500 Units Streptodornase. Boxes of 24 and 100 Tablets.*

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**CAULDRON BUBBLE GASTRIC TROUBLE**

Give immediate relief from heartburn and gastric distress with Al-Caroid. The fine-particle dispersion of balanced antacids in Al-Caroid quickly neutralizes excess gastric acid. The enzyme Caroid added to the Al-Caroid formula prevents interruption of protein digestion. When antacids raise the pH of stomach contents pepsin is inactivated, but the enzyme Caroid continues protein digestion in alkaline or acid media.

**AL-CAROID®**
**antacid powder or tablets**

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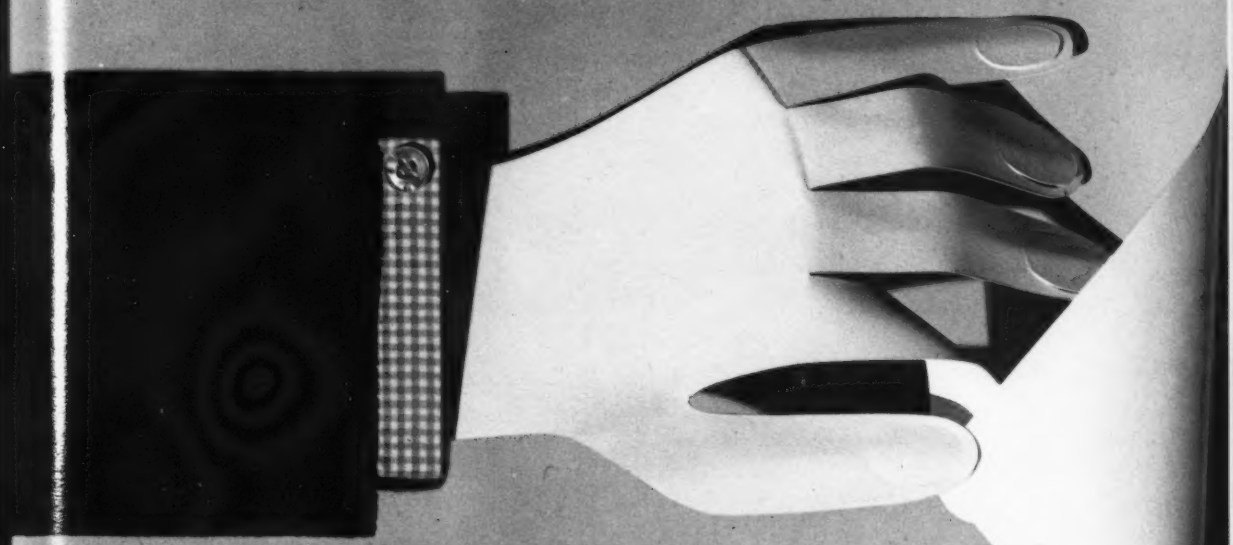

Like this page, a Filmtab coating is about 1/250th of an inch thick. That's the depth of the Filmtab which seals the active ingredients into Abbott vitamin tablets.

Why do we make it paper-thin?

Filmtab coatings replace sugar coatings. This means that our vitamin tablets are quite a bit smaller than most—sometimes by as much as 30%. This makes them easier to swallow. And, because there's no bulk (not even sub-seals are needed) the nutrients are readily available. Yet, patients remain protected from vitamin odors and after-tastes.

The greatest advantage, however, is in stability.

Filmtab coatings don't require water. Consequently, there is virtually no chance of moisture degradation. The potency your patient pays for stays in the tablet. Without sugar, we've even been able to eliminate much of the brittleness. So, tablets are less apt to chip or break.

Small reasons, perhaps, yet no refinement is too subtle if it adds to a product's performance, or your patient's convenience.

*Filmtab coatings protect these Abbott nutritionals:*

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| **DAYALETS®** | **OPTILETS®** | **SURBEX-T™** |
| **DAYALETS-M®** | **OPTILETS-M®** | **SUR-BEX® WITH C** |
| *Maintenance Formulas* | *Therapeutic Formulas* | *B-complex with C Formulas* |

TM—Trademark Filmtab—Film-sealed tablets, Abbott 112089

and you'll know how thin a FILMTAB® coating can be!

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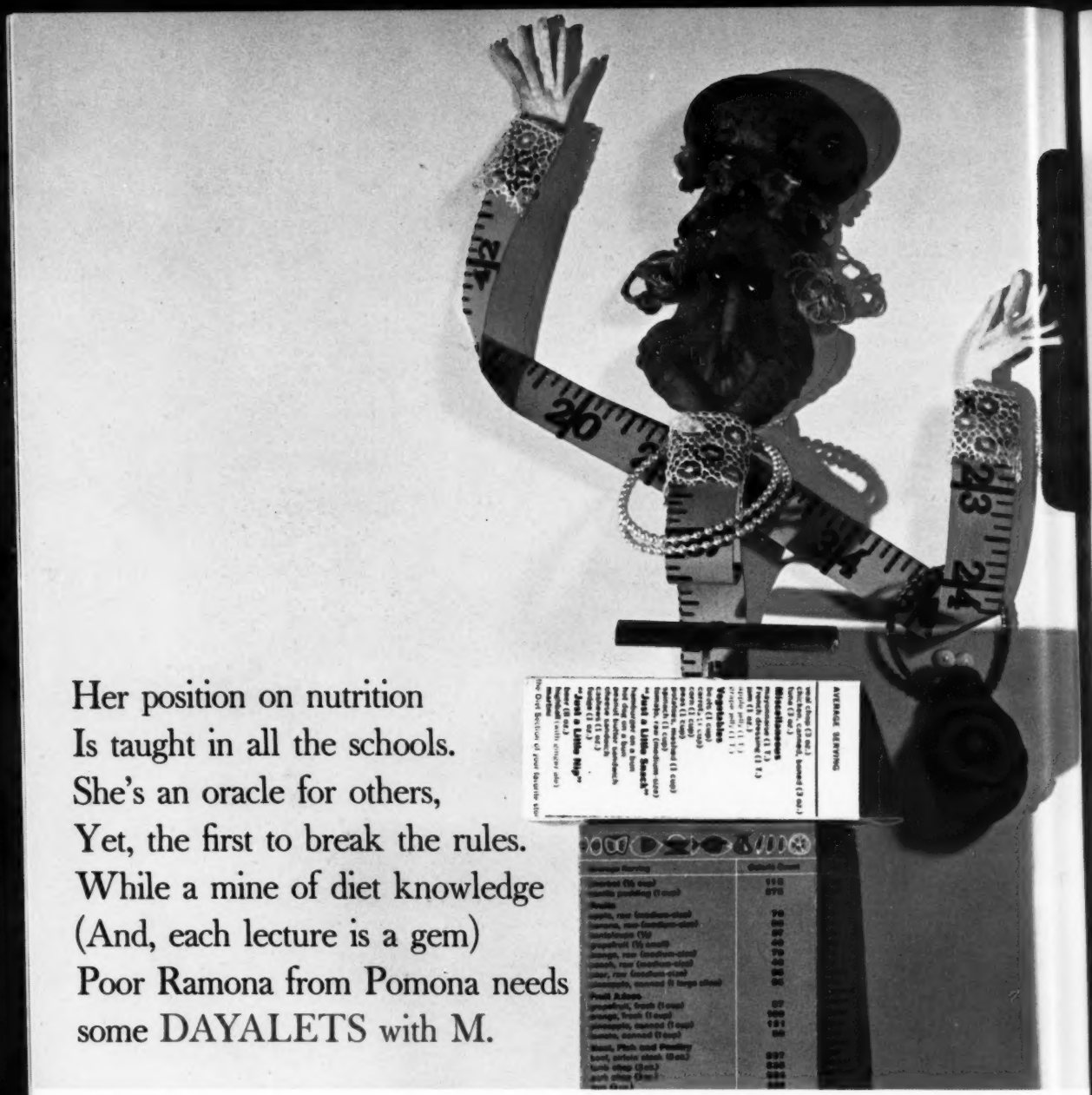

Her position on nutrition
Is taught in all the schools.
She's an oracle for others,
Yet, the first to break the rules.
While a mine of diet knowledge
(And, each lecture is a gem)
Poor Ramona from Pomona needs
some DAYALETS with M.

Likes, dislikes, and time schedules never interfere with her lectures, doctor, just her diet. She could live in a grocery store and still eat poorly. While Dayalets-M can't replace self-discipline, it can help insure optimal nutrition. Tablets are tiny, potent, and Filmtab-coated. Patients like taking them.

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## *The Twenty-Fifth Annual Meeting*
of
## THE NEW ORLEANS GRADUATE MEDICAL ASSEMBLY
## Conference Headquarters—Roosevelt Hotel
## March 12, 13, 14, 15, 1962

## GUEST SPEAKERS

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Anesthesiology

Edward P. Cawley, M.D.
Charlottesville, Va.
Dermatology

Julian M. Ruffin, M.D.
Durham, N. C.
Gastroenterology

Carroll L. Witten, M.D.
Louisville, Ky.
General Practice

Howard W. Jones, Jr., M.D.
Baltimore, Md.
Gynecology

Thomas M. Durant, M.D.
Philadelphia, Pa.
Internal Medicine

Maxwell M. Wintrobe, M.D.
Salt Lake City, Utah
Internal Medicine

Bernard J. Alpers, M.D.
Philadelphia, Pa.
Neurology

Ralph C. Benson, M.D.
Portland, Ore.
Obstetrics

Victor A. Byrnes, M.D.
St. Petersburg, Fla.
Ophthalmology

John H. Moe, M.D.
Minneapolis, Minn.
Orthopedic Surgery

Albert C. Furstenberg, M.D.
Ann Arbor, Mich.
Otolaryngology

Jeff Minckler, M.D.
Denver, Colo.
Pathology

Lewis L. Coriell, M.D.
Camden, N. J.
Pediatrics

Robert D. Moreton, M.D.
Fort Worth, Tex.
Radiology

John H. Mulholland, M.D.
New York, N. Y.
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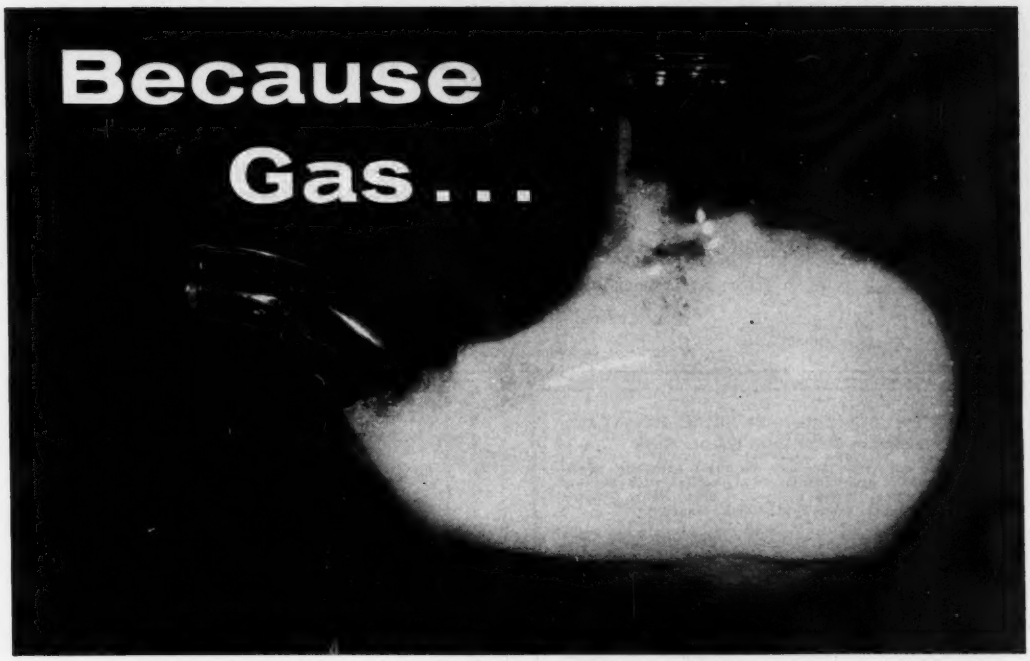


**often accompanies hyperacidity...**

# NEW SILAIN-GEL T.M.

LIQUID
TABLETS

## DEFROTHICANT • ANTACID

*should be part of antacid regimens*

When peptic ulcer, hyperacidity and heartburn are complicated by gas, they require more than antacids . . . *they require Silain-Gel!*

Silain-Gel includes a defrothicant, methylpolysiloxane*, that breaks up frothy bubbles thus liberating gas for elimination. And Silain-Gel includes the properly balanced antacid formulation for maximum neutralization.

Patient acceptance is assured by the non-fatiguing fruit mint taste of Silain-Gel. Silain-Gel is safe for long-term administration.

*Dosage:* Silain-Gel Liquid—2 teaspoonfuls 4 times daily after or between meals and at bedtime. Silain-Gel Tablets—2 tablets (chewed or swallowed) after meals and at bedtime.

*Formula:* Each tablet contains 25 mg. activated methylpolysiloxane, 282 mg. aluminum hydroxide (equivalent to Dried Gel, U.S.P.) and 85 mg. magnesium hydroxide. Each teaspoonful of Liquid is equivalent to 1 tablet.

*Available:* Silain-Gel Liquid—Plastic Flask, 12 fl. oz.; Silain-Gel Tablets—Bottles of 100.

*Write for Clinical Trial Supply and Detailed Literature.*

*U.S. Patent No. 2,951,011

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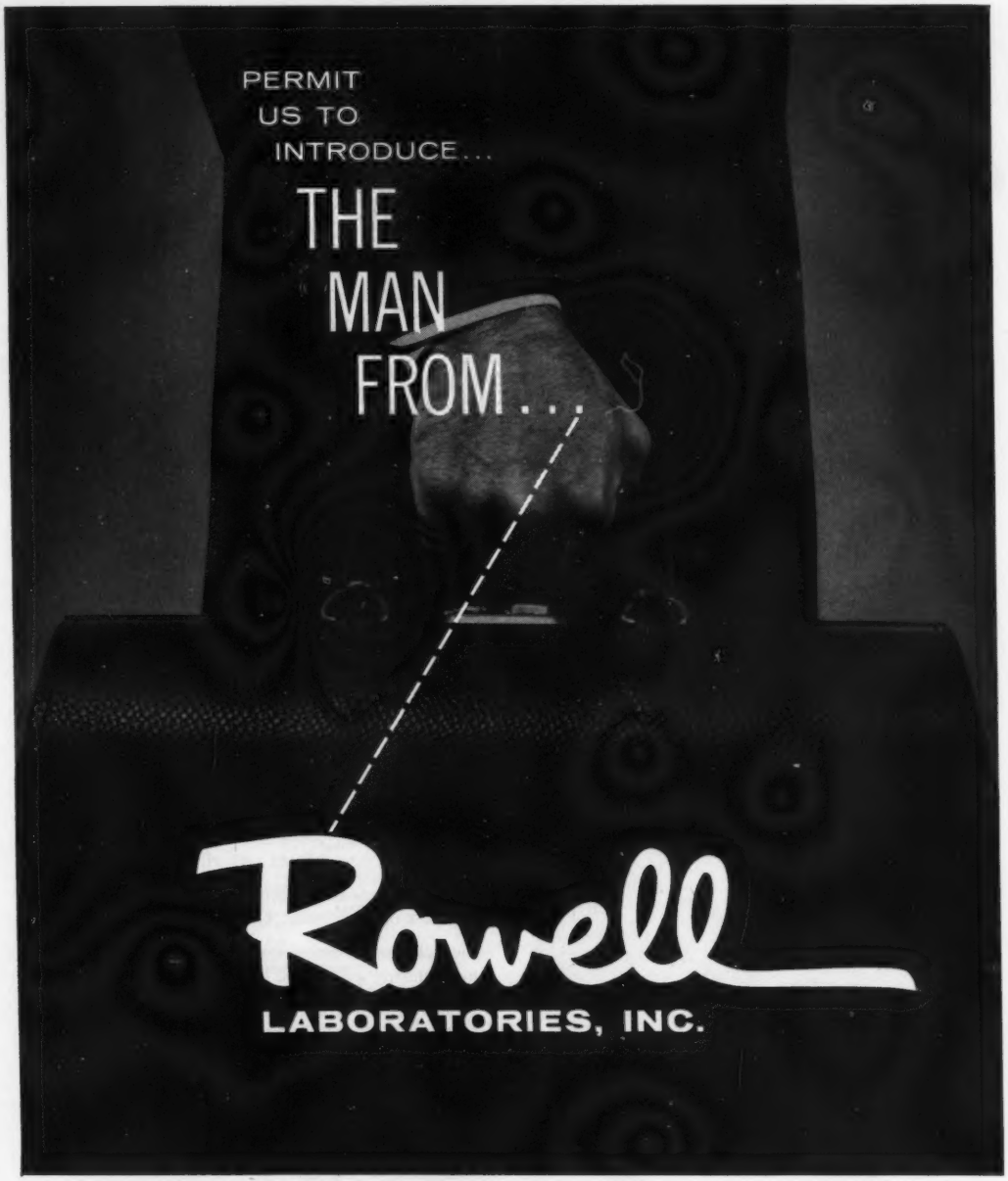


He carries with him the essence of our company . . . our philosophy, our products, the results of our technical skills and research findings. He can and will provide you with anything you wish to know about us; about our products—what they will do—and what they will *not* do. He will provide you with samples for your own clinical evaluations, or with reports of other physicians' findings should you wish them. He is dedicated to helping you keep abreast of the newest and best in pharmaceuticals.

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## Fibre-free HYPOALLERGENIC formula

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SOYALAC helps solve the feeding problem of prematures and infants requiring milk-free diet.

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**Controls food craving, keeps the reducer happy** — In obesity, "our drug of choice has been methedrine . . . because it produces the same central effect with about one-half the dose required with plain amphetamine, because the effect is more prolonged, and because undesirable peripheral effects are significantly minimized or entirely absent." Douglas, H. S.: West.J.Surg. 59:238 (May) 1951.

# 'METHEDRINE'®

brand Methamphetamine Hydrochloride

Supplied: Tablets 5 mg., scored. Bottles of 100 and 1000.

Literature available on request.

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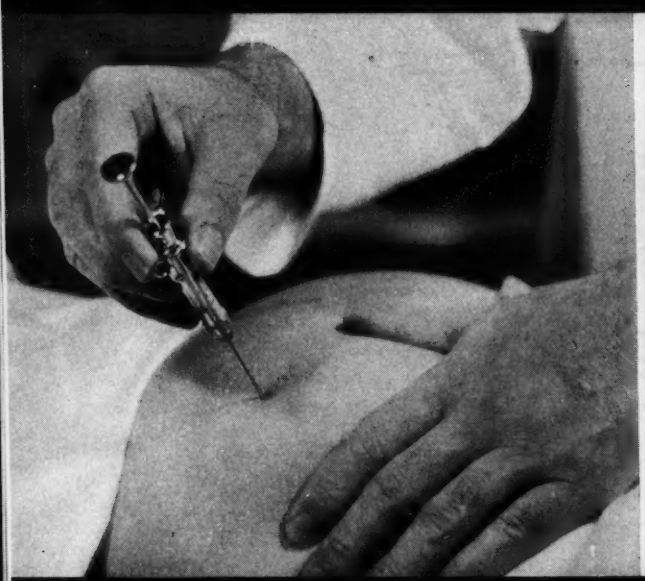
*In oral penicillin therapy*

COMPOCILLIN-VK

*offers the speed, the certainty,*

*the effectiveness*

*of this...*



*with the safety*

*and the convenience*

*of this...*

# IN ORAL PENICILLIN THERAPY

# COMPOCILLIN®-VK

POTASSIUM PENICILLIN V

BECAUSE potassium penicillin V (Compocillin-VK) offers excellent absorption[1,2,3,4]—fast, predictable levels of antibacterial activity enter the blood stream and quickly reach the site of infection. *Absorption takes place high in the digestive tract and is virtually unaffected by gastric media.*

Antibacterial levels are so predictable that, in many cases, *Compocillin-VK may be prescribed in place of injectable penicillin.* This is especially appreciated by younger patients and—as you know—oral administration is considered far safer than injectable.

Compocillin-VK is well tolerated and may be used in treating mild, severe, and in high dosage ranges, even critical cases involving penicillin-sensitive organisms. It comes in stable, palatable forms for every patient—every age.

There are tiny, easy-to-swallow Filmtab® tablets—125 mg. and 250 mg. (200,000 units and 400,000 units), a tasty, cherry-flavored suspension (each 5-ml. teaspoonful contains 125 mg.) and two combinations (Filmtab and suspension) with the triple sulfas. Depending on severity of infection, dosage for Compocillin-VK is usually 125 mg. or 250 mg. three times a day. Won't you try Compocillin-VK?

1. R. Lamb and E. S. Maclean, Penicillin V—A Clinical Assessment After One Year, *Brit. M. J.*, July 27, 1957, p. 191-193. 2. J. I. Burn, M. P. Curwen, R. G. Huntsman and R. A. Shooter, A Trial of Penicillin V, *Brit. M. J.*, July 27, 1957, p. 193. 3. J. Macleod, Current Therapeutics, *The Practitioner*, 178:486, April, 1957. 4. W. J. Martin, D. R. Nichols and F. R. Heilman, Observations on Clinical Use of Phenoxymethyl Penicillin (Penicillin V), *J.A.M.A.*, p. 928, March 17, 1956.

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®FILMTAB—FILM-SEALED TABLETS, ABBOTT.
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**when you can run an ECG or BMR in the next room . . .**

. . . you have *all* the advantages and conveniences of these two diagnostic facilities at your fingertips. Immediate availability of data, firsthand knowledge and control of conditions at the time of the test, and time saved because "outside arrangements" needn't be made, are but a few of the advantages of owning your own electrocardiograph and metabolism tester.

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Hydrocholeretic • Antispasmodic • Sedative...to reduce *TENSION* and anxiety-induced dysfunction of G.I. and biliary tracts...and also relieve both smooth-muscle *spasm* and biliary/intestinal *stasis*

butabarbital sodium ..... 15 mg. (¼ gr.)
(Warning—may be habit forming)
dehydrocholic acid, AMES .....250 mg. (3¾ gr.)
belladonna extract ..... 10 mg. (⅙ gr.)

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belladonna extract ..... 10 mg. (⅙ gr.)

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Hydrocholeretic...to combat *STASIS* in bowel and biliary tract...by activating biliary function with a greatly increased flow of aqueous "therapeutic" bile

dehydrocholic acid, AMES .....250 mg. (3¾ gr.)

*Average adult dose:* 1 or, if necessary, 2 tablets three times daily.

*Side effects:* DECHOLIN by itself, or as an ingredient, may cause transitory diarrhea. Belladonna in DECHOLIN with Belladonna and DECHOLIN-BB may cause blurred vision and dryness of mouth.

*Contraindications:* Biliary tract obstruction, acute hepatitis, and (for DECHOLIN with Belladonna and DECHOLIN-BB) glaucoma.

*Precautions:* Periodically check patients on DECHOLIN with Belladonna and DECHOLIN-BB for increased intraocular pressure. Also observe patients on DECHOLIN-BB for evidence of barbiturate habituation or addiction, and warn drivers against any risk of drowsiness.

*Available:* DECHOLIN-BB, in bottles of 100 tablets; DECHOLIN with Belladonna and DECHOLIN, in bottles of 100 and 500.

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unsurpassed
in providing
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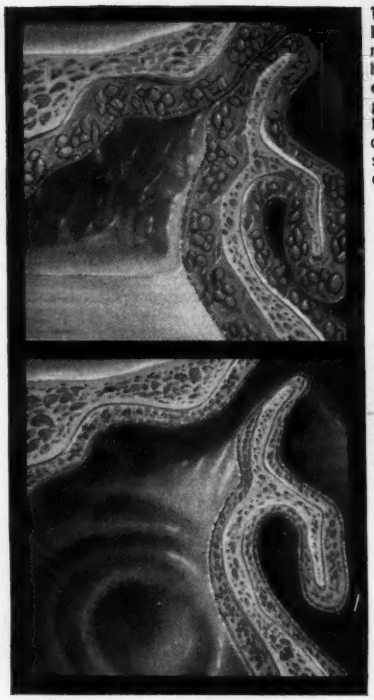

**The clogged sinus**
In sinusitis, the mucous membrane becomes hyperemic and edematous, lymph glands and goblet cells hyperactive. Ostium is closed by edema and secretions cannot drain freely.

**The normal sinus**
Magnified anatomy of a portion of maxillary sinus showing mucous membrane with cilia and lymph glands. Ostium is normal and patent.

# NEO-SYNEPHRINE®

brand of phenylephrine hydrochloride

hydrochloride

## NASAL SPRAYS AND SOLUTIONS

When there is nasal turgescence, tiny orifices of sinus ostia tend to clog. Neo-Synephrine nasal solutions and sprays reduce edematous tissues on contact to provide prompt relief. As turbinates shrink, obstructed sinus ostia open, drainage and breathing become freer and the boggy feeling of a cold disappears.

Delicate respiratory tissue and its natural defenses are not harmed by exceptionally bland Neo-Synephrine; systemic effects are nil; it does not sting. For years it has been recommended for prevention and treatment of sinusitis.[1-3] Repeated applications do not lessen effectiveness.

Available in plastic nasal sprays for adults (½%) and children (¼%), in dropper bottles of ⅛, ¼ or 1 per cent.

1. Grant, L. E.: Coryza and nasal sinus infections, **Clin. Med. & Surg.** 42:121, March, 1935. 2. Putney, F. J.: Sinus infection, in Conn, H. F. (Ed.): Current Therapy 1952, Philadelphia, W. B. Saunders Company, 1952, p. 110. 3. Simonton, K. M.: Current treatment of sinusitis, **Journal-Lancet** 79:535, Dec., 1959.

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***Improves gait • Increases Comfort***

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**HANGER Prosthetists have received special university training on the PTB. This advanced training enables HANGER Prosthetists to work closely with you in the rehabilitation of your amputee patients. May we serve you?**

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**A PHOSPHOROUS-FREE PRENATAL SUPPLEMENT**

**fosfree®..**
provides a comprehensive formula of essential phosphorous-free calcium plus the vitamins and minerals necessary to assist in the prevention and relief of . . .

- leg cramps resulting from calcium deficiencies
- vitamin and mineral deficiencies
- nausea of the prenatal patient
- secondary anemias

Results are achieved without constipation. Systemic alkalosis, phosphorous deprivation and chloride depletion are avoided.

**fosfree®..**

SUPPLIED: Bottles of 100
DOSAGE: Four tablets daily (one tablet mid-morning, one tablet midafternoon, and two tablets at bedtime).

**The suggested daily schedule provides:**

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|---|---|
| Calcium Lactate | 1000. mg |
| Calcium Gluconate | 1000. mg |
| Calcium Carbonate | 1200. mg |
| (Calcium | 703. mg) |
| Vitamin $D_2$ | 600. USP units |
| Vitamin A Acetate | 6000. USP units |
| Vitamin E (as mixed Tocopherols) | 5.0 I.U. |
| Ascorbic Acid Vitamin C) | 150. mg |
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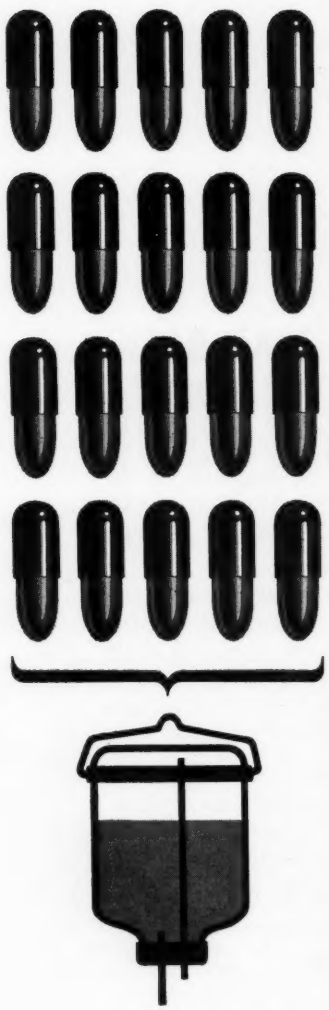

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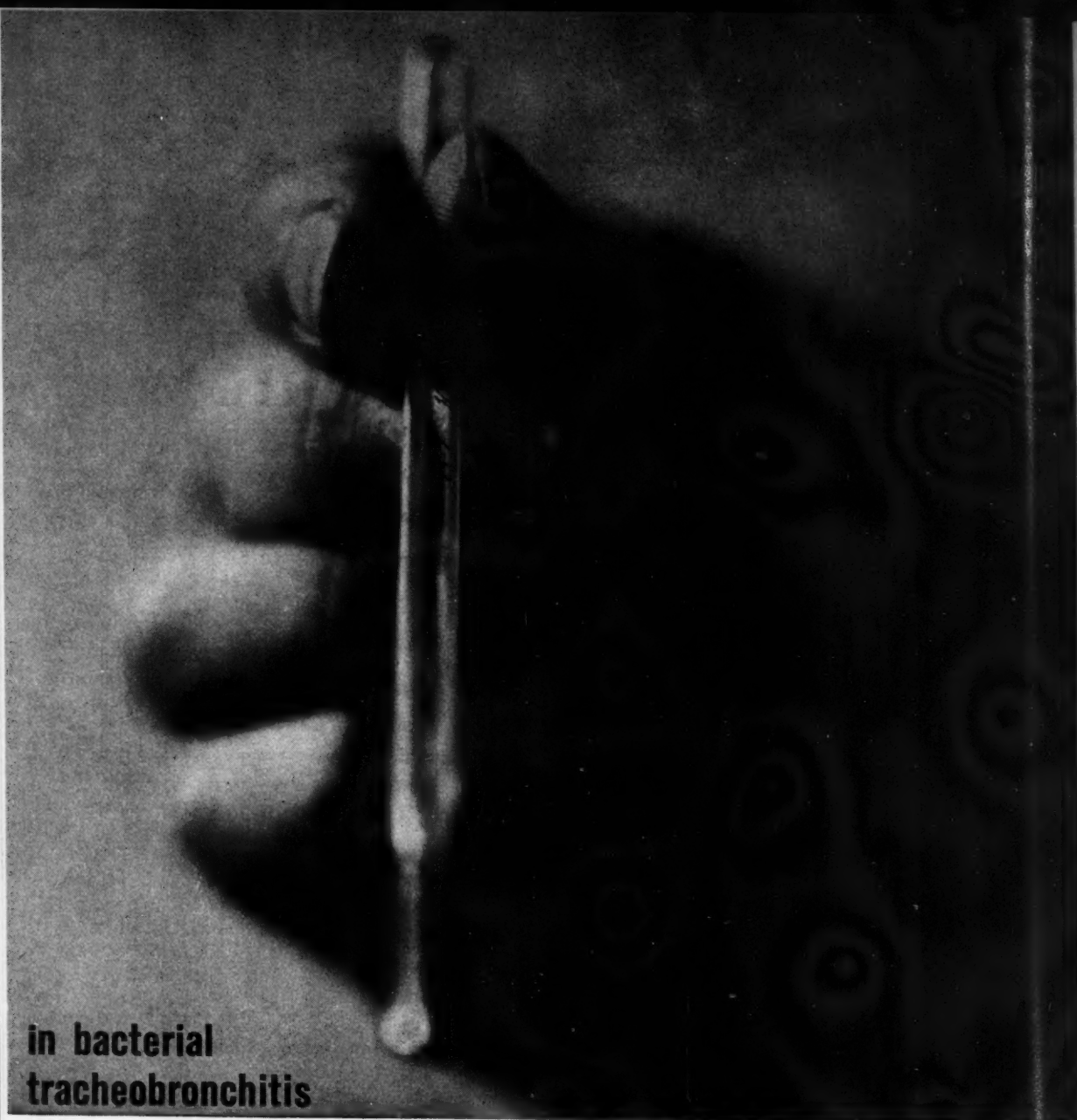

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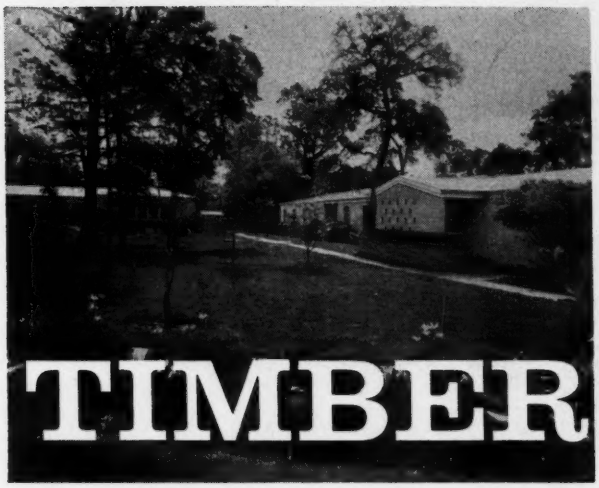

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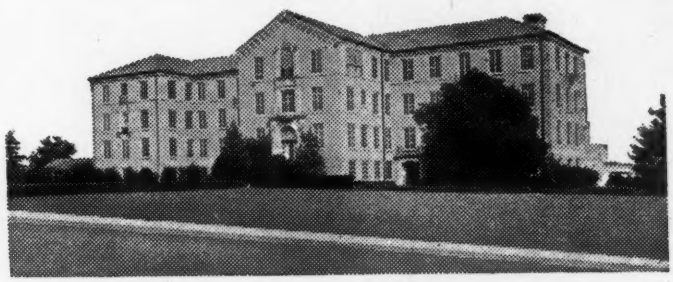

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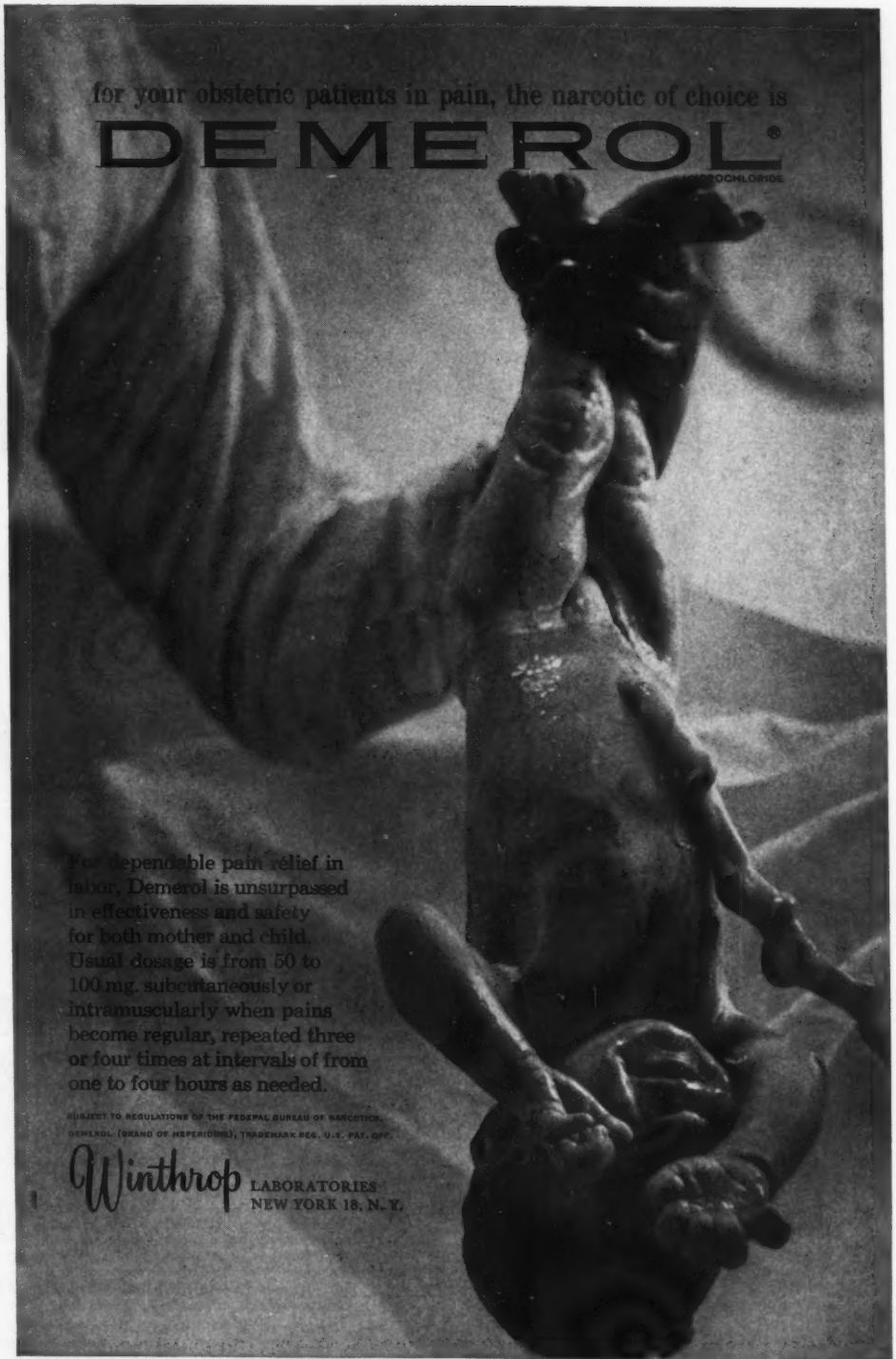
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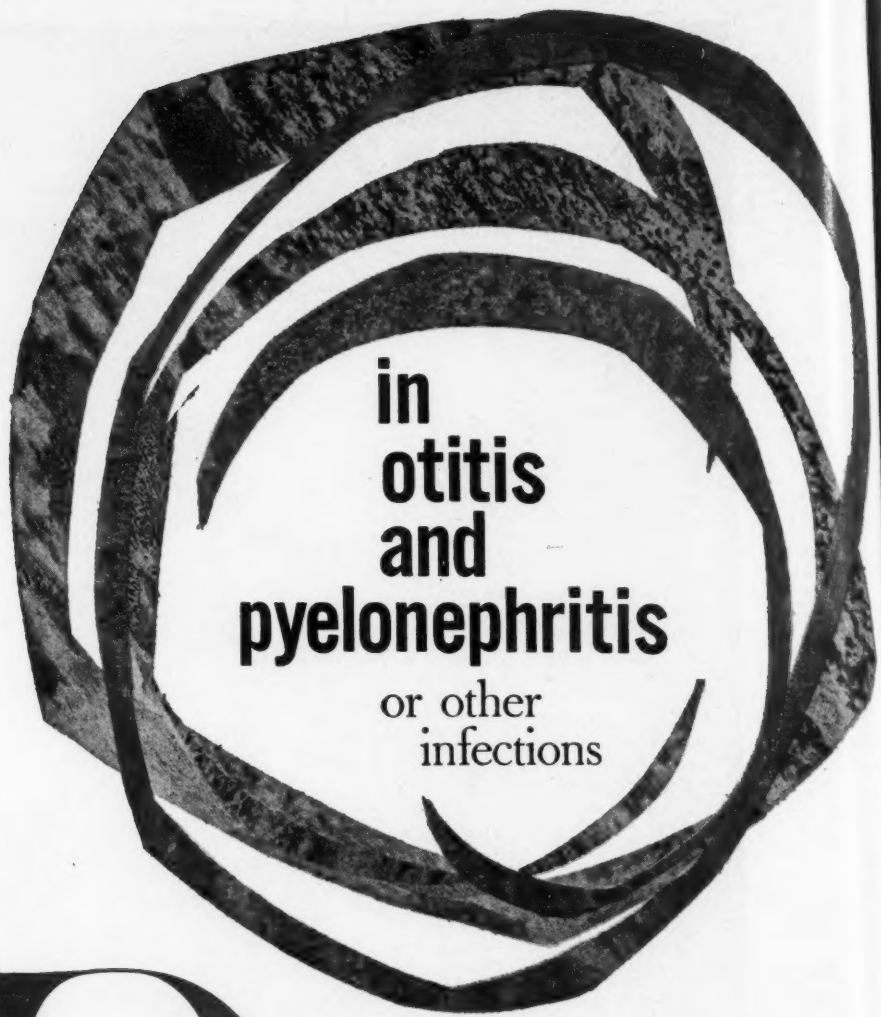


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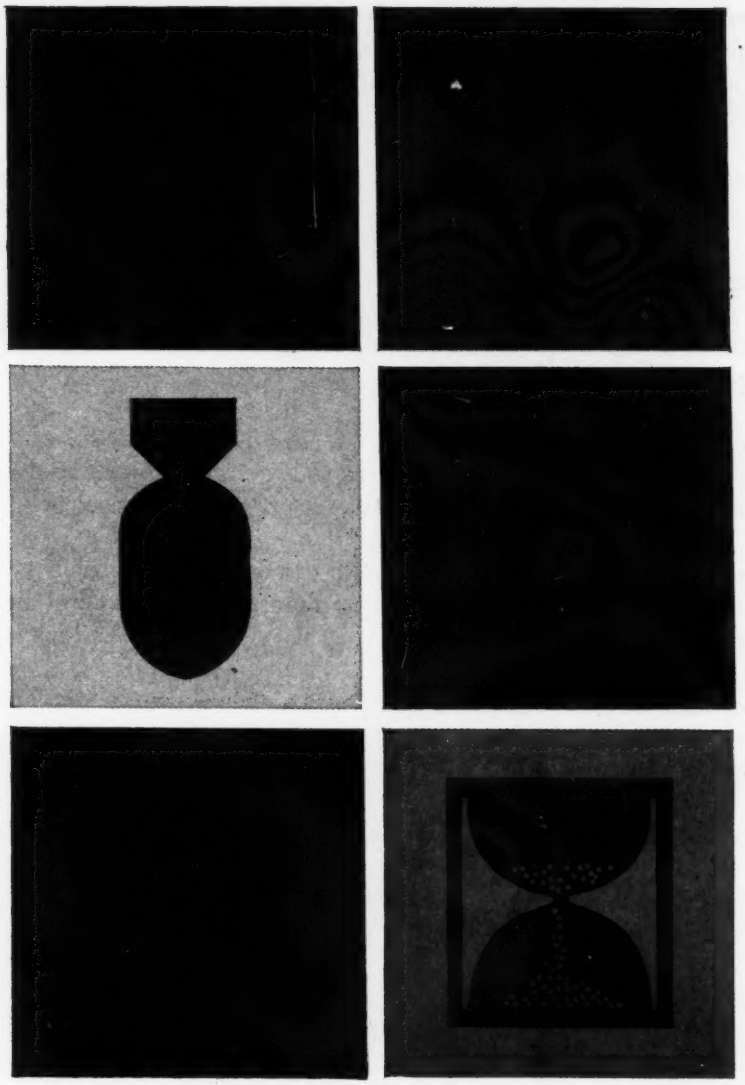

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References:

[1]Bastian, J. W.: Classification of CNS Drugs by a Mouse Screening Battery. To be published in Intern. Arch. de Pharmacodynamie; [2]Hubata, J. A., and Hecht, R. A.: Review of Clinical Use of Hydroxyphenamate (Listica) in 1,759 Patients. To be published in Clinical Medicine; [3]Taub, S. J.: Management of Anxiety in Allergic Disorders—New Approach. To be published in Psychosomatics; [4]Cahn, B.: Experience with a New Tranquilizing Agent (Hydroxyphenamate). *Ibid;* [5]Davis, O. F.: On Use of Hydroxyphenamate in Anxiety Associated with Somatic Disease. To be published; [6]Alexander, L.: Effect of Hydroxyphenamate on Conditional Psychogalvanic Reflex in Man. Supplement to Diseases of the Nervous System, Sept., 1961; [7]Cahn, B.: Effect of Hydroxyphenamate in Treatment of Mild and Moderate Anxiety States. *Ibid;* [8]Cahn, M. M., and Levy, E. J.: Use of Hydroxyphenamate (Listica) in Dermatological Therapy. *Ibid;* [9]Eisenberg, B. C.: Amelioration of Allergic Symptoms with a New Tranquilizer Drug (Listica). *Ibid;* [10]Friedman, A. P.: Pharmacological Approach to Treatment of Headache. *Ibid;* [11]Greenspan, E. B.: Use of Hydroxyphenamate in Some Forms of Cardiovascular Disease. *Ibid;* [12]Gouldman, C., Lunde, F., and Davis, J.: Clinical Trial of Hydroxyphenamate in Alcoholic Patients. *Ibid;* [13]McLaughlin, B. E., Harris, J., and Ryan, E.: Double Blind Study Involving "Listica," Chlordiazepoxide, and "Placebo" as Adjunct to Supportive Psychotherapy in Psychiatric Clinic. *Ibid;* [14]Bastian, J. W.: Pharmacology and Toxicology of Hydroxyphenamate. *Ibid;* [15]Bossinger, C. D.: Chemistry of Hydroxyphenamate. *Ibid.*

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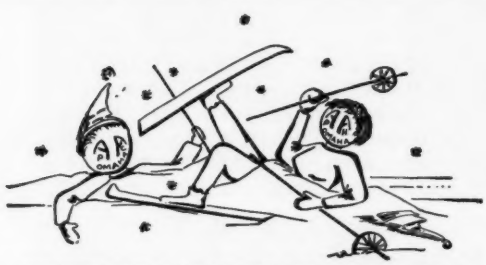

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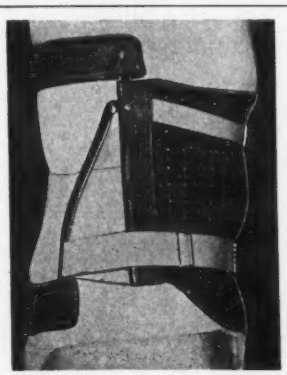

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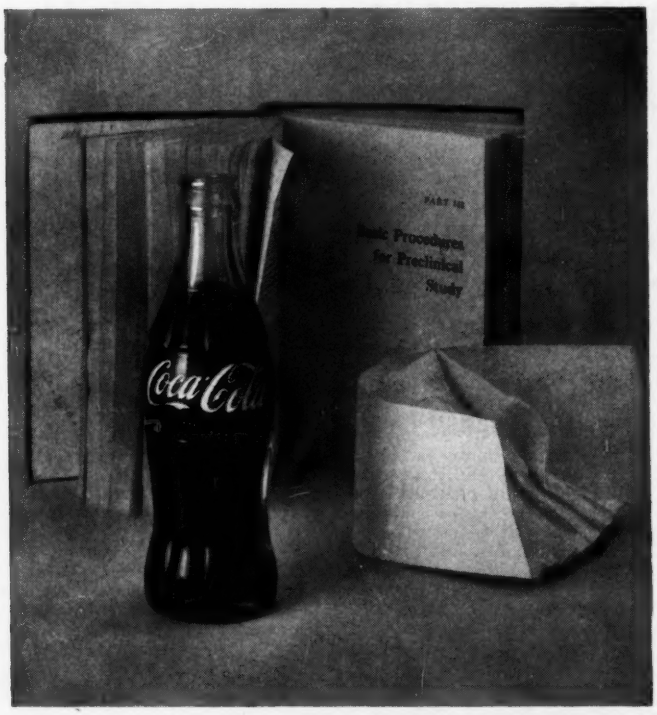


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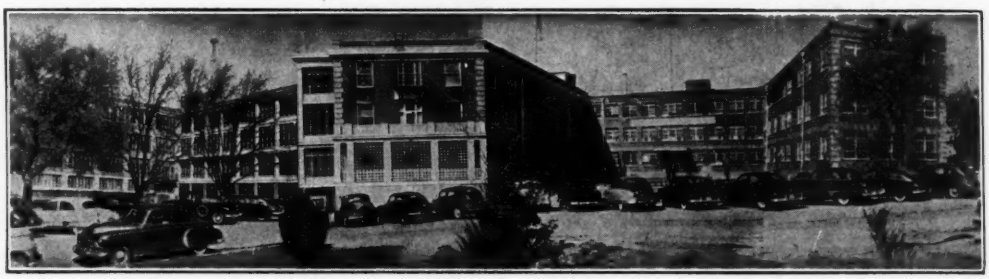

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